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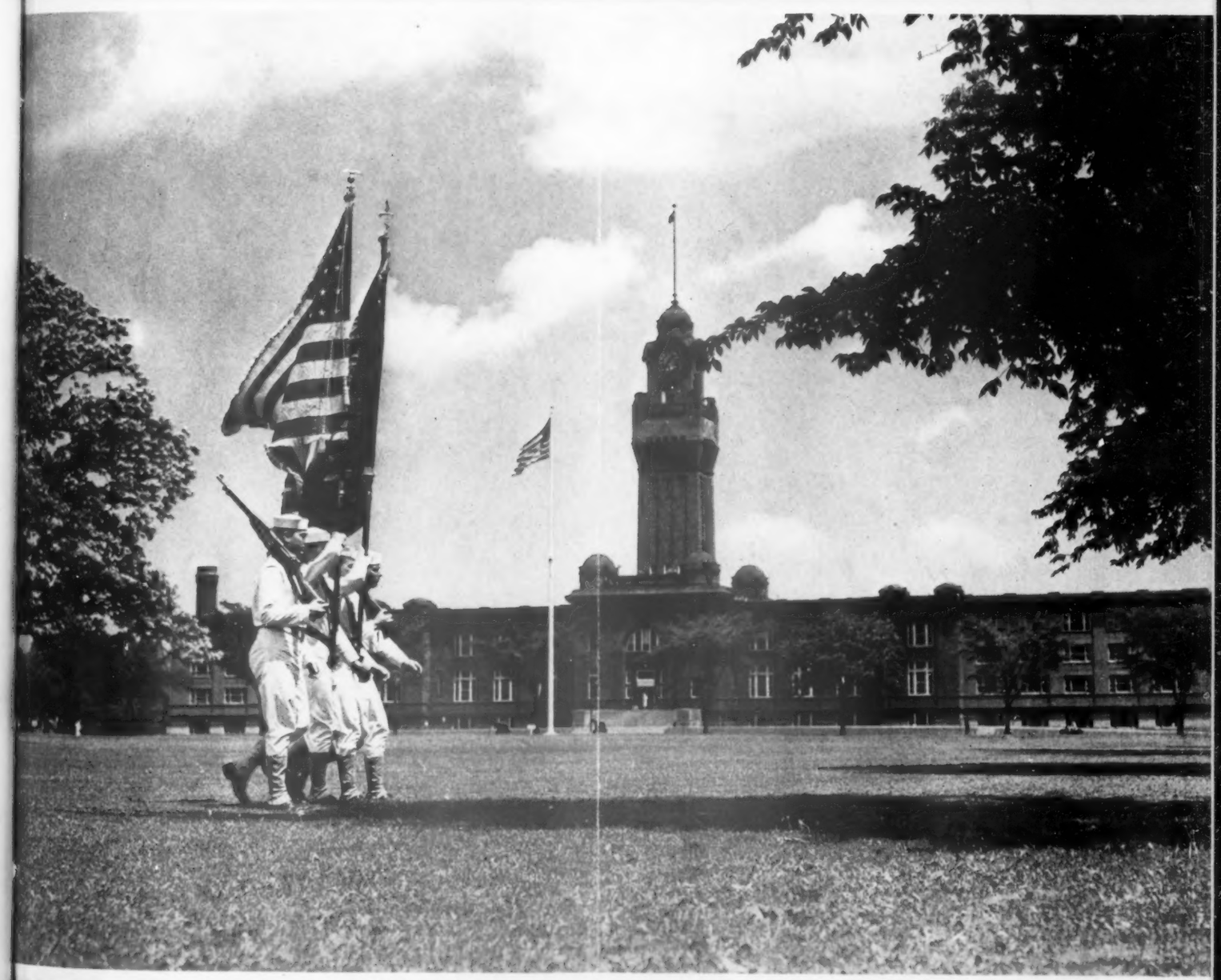
EDUCATIONAL SCREEN

THE MAGAZINE DEVOTED TO AUDIO-VISUAL AIDS IN EDUCATION



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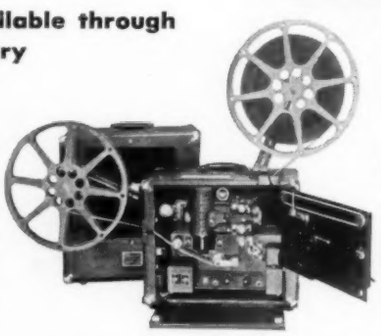

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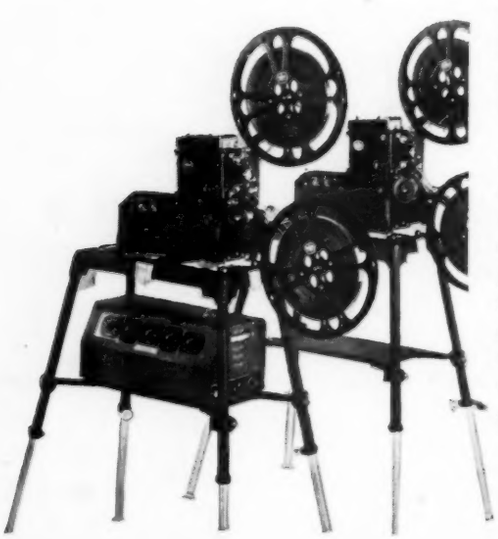
Behind the Battle Line...

Motion Pictures *Refresh* our Fighting Men



PRECISION CINE EQUIPMENT

Against a backdrop of rugged mountains and desert skies, two thousand American soldiers are enjoying a showing of one of the latest Hollywood films. The scene is immediately behind the battle lines at a U. S. Army base where our fighting men came to rest and relax before going back into action.

Here the Army Special Service Units make available to the men every type of recreational material from books and athletic equipment to musical instruments and amateur theatrical supplies. Most important, according to men in the Special Service Units, is the compact portable motion picture outfits known as the "J" kits—which are used to show the films rushed by Air Transport from Hollywood. Next to food and mail from home, these outdoor movies are the most potent force for maintaining morale.

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Trends in Audio-Visual Instruction

A stimulating forecast of what lies ahead in visual instruction, and concrete suggestions for realizing its possibilities to the full in American education.

L. C. LARSON
The School of Education and Extension Division
Indiana University, Bloomington

ADDED impetus to the already increasing production and utilization of audio-visual aids has been given by the production and use of instructional programs for the armed forces. A large portion of these aids are being produced by specialized branches of the Army and Navy. Moreover, about eighty percent of the volume of non-theatrical producers is devoted to production of training aids. Furthermore, such theatrical producers as Disney have "about ninety percent converted to making films for Uncle Sam." Other Hollywood studios have produced more than one hundred training films for the Army. It is estimated that the Army now has twenty thousand 16mm. sound projectors in use, and the Navy over ten thousand.[1] Since officers in charge of training recognize that "The film is the instructor's assistant, not his substitute and not his master,"[2] they have assigned film utilization officers to training stations over the nation.

To what extent will this successful use of audio-visual aids for imparting information and developing skills, habits, and attitudes essential to success in the various fields of scientific warfare, affect general educational methods after the war? Frequently the best way to predict future developments in an area is to study its history. Following a brief analysis of pre-war trends in the purchase of equipment by schools, the organization of film libraries by educational institution and agencies, and the extent and type of film used by classroom teachers, the writer will endeavor to predict trends in this area during the first decade of the post-war period.

Progress in Audio-Visual Instruction During the Decade Preceding the War

School Ownership of Equipment.—A study in 1936 by the American Council on Education, in collaboration with the U. S. Office of Education, revealed that the reporting schools owned 458 16mm sound projectors.[3] Comparable studies in 1940-41 by the U. S. Bureau of Foreign and Domestic Commerce disclosed that schools had a total of 9,861 16mm. sound projectors.[4-5] On the basis of more recent surveys of equipment owned by schools in three states it seems reasonable to estimate that the elementary and secondary schools in the nation now own approximately fifteen thousand 16mm. sound projectors.

A large number of school units own one projector which, it may be assumed, was purchased for auditorium use. Additional equipment usually is not purchased until the school develops a planned program for classroom use of films. Table 1 reveals that the cities with a population of over 100,000 own 4.63 projectors per 100,000 population. This ratio increases for cities of 50,000 to 100,000 and for cities of 25,000 to 50,000. The data indicate that there would be a corresponding increase for cities and villages with a population of less than 25,000, if the population served by rural schools without electricity could be subtracted from the total population.

When the states are ranked on the basis of number of projectors per 100,000 population and on the economic ability of the states to support public education, a wide disparity is noted. New York State, which ranks first in the ability to support public education, ranks 41st in the number of projectors. On the other hand, Idaho, which ranks 34th in wealth, ranks third in the number of projectors. The rank correlation coefficient was .36, with a standard error of .13. While the degree of relationship is statistically significant, it is low. There are other factors, apparently, which are more important than economic wealth in determining the adequacy of the school's audio-visual program.

There is likewise a wide disparity in the ownership of projectors among cities in each of the population categories. A city with one and one-half million population, in a state which ranks eleventh in wealth, has 260 projectors, whereas, another city with approximately two million population, in a state which ranks ninth in wealth, has only 19 projectors! A comparison of cities within population categories seems to indicate that the factor which is more important than wealth is the quality of leadership provided by the local director of audio-visual education.

Table I. School Ownership of 16mm. Sound Projectors by Population Groups

	Population less than 25,000	Population 25,000 to 49,999	Population 50,000 to 99,999	Population over 100,000	Total
Number of Projectors	6,891	655	557	1,758	9,861
Total Population	79,212,583	7,265,871	7,197,832	37,992,989	131,669,275
Ratio of Proj. per 100,000	8.07	9.01	7.74	4.63	7.41

[1] "16mm. Field Expanding to Big Business Status." *Motion Picture Herald.* April, 1943. 151:15.

[2] Bell, Reginald. "Training Films in the Navy." *Visual Review,* Society for Visual Education, Inc., 1943. Chicago. p. 10.

[3] American Council on Education, Washington, D. C. *National Visual Education Directory,* compiled by Koon and Noble. 1936. 269p.

[4] Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C. *Survey of Motion-Picture Equipment in Elementary Schools in the United States,* compiled by Golden. 1942. 444p.

[5] Department of Commerce, Bureau of Foreign and Domestic Commerce. Washington, D. C. *Survey of Motion-Picture Equipment in Colleges and High Schools in the United States and Its Territories,* compiled by Golden. 1941. 513p.

Organization of Educational Film Libraries. Prior to the organization of the Educational Film Library Association, the writer served as chairman of a committee which represented approximately one hundred institutions maintaining film libraries that are serving as depositories for government films.

Table II. Organization of Film Lending Libraries by Educational Institutions, 1910-42

Type of Institution	1910-14	1915-19	1920-24	1925-29	1930-34	1935-39	1940-42	TOTAL
State University	3	5	2	1	2	13	10	36
State College	0	1	1	1	0	2	8	13
Private University	0	0	0	1	2	1	2	6
Private College	0	0	0	0	0	3	2	5
Teachers College	0	0	0	0	2	10	21	33
Junior College	0	0	0	0	0	1	2	3
State Dept. of Education	0	0	1	1	0	0	2	4
Public Museum	0	1	1	0	0	0	1	3
Public Library	0	0	0	0	0	0	1	1
TOTAL	3	7	5	4	6	30	49	104

Table II gives the date of organization of 104 of these libraries. Of the 25 film libraries organized prior to 1935, 16 were film libraries in extension divisions of state universities and colleges. Seventy-nine film lending libraries have been organized since 1935, 33 by state universities and colleges, 31 by teachers colleges, and 11 by private universities and colleges. Available information suggests that there has been a proportionate increase in the number of film libraries organized by public schools since 1935.

Utilization of Classroom Films. The number of film subjects owned by the film lending libraries varies from less than fifty to over two thousand. The practice of these libraries is to buy one print of a subject and later purchase the duplicate prints needed to meet requests.

The public school libraries, on the other hand, own a smaller number of titles and more duplicate prints per title. School libraries usually duplicate prints before the library reaches one hundred titles; whereas, the film lending library will seldom duplicate prints until the library has three hundred or more titles.

There is likewise a wide variation among the film lending libraries and the city libraries with respect to the number of duplicates of each title. One city with a population of over three million and with 213 sound projectors in the schools frequently buys twenty duplicate prints and may buy up to forty duplicate prints of the most popular subjects.

At the present time most of the cities and villages with a population of under 50,000 rely on educational film lending libraries for classroom films. In one state, schools in cities and villages with populations under 50,000 own a total of 698 sound projectors. If these schools were to make the same intensive use of classroom films as is made in the city mentioned above the film libraries in that state would need from 60 to 140 duplicate prints of the more widely used classroom films. Most of the 104 film lending libraries buy one and two prints of each subject. A limited number buy four or five prints and not more than three purchase up to ten duplicate prints of any given subject.

Prediction of Trends in Audio-Visual Instruction During the Decade Following the War

Purchase of Equipment by Schools. At the conclusion of the war a substantial number of over twenty thousand projectors owned by the military forces will probably be made available for civilian use. These projectors, which before the war listed at over $400, have been purchased by the government for approximately $200 per projector and will probably have a salvage value of less than $100.

To meet government requests during the last two years, equipment manufacturers have developed mass production methods. It is reported that following the war a 16mm. sound projector, suitable for classroom use, will be designed which can be sold for around $150. There is also the possibility that the equipment originally designed for the projection of "Soundies" in night clubs and taverns may be adapted for classroom use. This would mean a self-contained unit with projector, amplifier, speaker, and translucent screen, which would permit the showing of motion pictures in a classroom equipped with ordinary window shades.

The schools now own approximately fifteen thousand sound projectors. There are approximately one million elementary and secondary school teachers in the nation. On the basis of the evidence presented above, it seems reasonable to predict that within the first decade following the war the ratio of teachers to projectors will reach ten to one, and schools will own over one hundred thousand 16mm. sound projectors.

Production of Classroom Films. Both theatrical and non-theatrical producers are engaged in the production of training films for the military services. At the end of the war, some of these companies will organize departments for the production of educational films. At the present time, the major producer of 16mm educational sound films is Erpi Classroom Films, Inc. An incomplete study of titles and number of prints owned by libraries indicates that of the one hundred most common titles, over ninety will be Erpi subjects. Theatrical shorts are now available to schools through the Teaching Film Custodians. Erpi films cost $45 per reel and the theatrical shorts may be leased for $25 per reel. A comparison of the twenty most popular subjects released by Erpi and Teaching Film Custodians since 1939 reveals that schools are purchasing several times as many prints of Erpi films as they are of Teaching Film Custodians films. While some of the non-theatrical producers of industrial films have prepared films for school use, only a limited number of libraries have purchased prints. This evidence clearly indicates that teachers are most interested in films which correlate closely with courses of study. Does the film provide potential learning experiences which will contribute to the achievement of course objectives? This is the first criterion applied by teachers in the selection of films. Grierson points out in an article on the need of films for teaching citizenship, "It is not the technical perfection of the film that matters, nor even the vanity of its maker, but what happens to that public mind."[6]

It is unlikely that all producers will be able to maintain the educational staff necessary for the preparation

[6]Grierson, John. "The Documentary Idea—1942." *Films News*, October 1942, 3:7-8.

of scenarios for classroom films. The writer, therefore, predicts that producers of educational films will follow the pattern that has been developed by publishers of textbooks. In 1876, 33 percent of the authors of textbooks were members of editorial staffs or professional writers, and by 1926, this proportion had decreased to 8 percent.[7] At the present time, certainly 95 percent of the authors of textbooks for all educational levels are engaged either in college or public school work.

Heretofore, specialists in the academic fields have had little or no experience in the use of the film medium. A number of the younger men now in the service will have had the opportunity to work either with film production units or to use films for training purposes. Producers will undoubtedly select authors for preparation of scenarios from these men, on their return to teaching and research positions in colleges and schools. The author of the scenario in the subject matter field will cooperate closely with the director of audio-visual aids in the college or school. The production company will pay the subject matter specialist and director of audio-visual education a royalty based on sale of prints.

Production companies are interested in the number of prints which may be sold of a film which correlates closely with units included in representative courses of study on the elementary and secondary levels. For example, about eighty thousand elementary classes will deal each year with "Man's Adaptation to Physical Environment in Low Lands." Approximately sixty thousand secondary classes will study each year "The Function of the Heart in the Circulation of Blood." Consequently, the writer predicts that within the first post-war decade the sale of prints of film subjects which deal with the more important concepts will reach 3,200 prints for elementary films and 2,500 prints for secondary films or a ratio of one print for each 25 classes.

Organization of Educational Film Libraries. Trends in organization of film libraries during the pre-war decade will continue in an accelerated fashion during the post-war decade. Staff members now in the military services who have used audio-visual aids for training purposes will provide leadership and, as directors of audio-visual instruction, will be able to help teachers in the selection and use of these aids. Larger school systems will organize film libraries rapidly as soon as restrictions on the sale of projectors are removed. Smaller schools will increase instructional budgets to enable the director to order needed films from educational film lending libraries. Schools will probably follow the policy of buying a print of a subject when the annual service and transportation charges for the use of any subject exceed from one-tenth to one-fifth of the cost of a print. Cities with a population of 25,000 will have 10 to 15 teachers for each of the elementary grades. Therefore, the writer predicts that a substantial number of the 405 cities with a population of over 25,000 will establish film libraries within the first post-war decade.

[7]Richey, Herman G. "The Professional Status of Textbook Authors." *The Textbook in American Education*, National Society for the Study of Education, Thirtieth Yearbook, Part II, 1931. p. 74.

Since evidence points to the truth of the maxim, "Teachers teach as they were taught, rather than as they were taught to teach," instructors in teacher-training institutions in both the academic and professional areas must be encouraged to use films.

Higher institutions operate on limited budgets. A study of library facilities of sixty teachers colleges, by Rosenlof, in 1928, revealed that selected teachers colleges were spending annually an average of $2,129.31 for books, periodicals and new equipment.[8] Even if the teachers colleges were to spend as much money for films as they are now spending for books, the amount would be insufficient to organize a film library. The writer believes that teacher-training institutions in organizing film libraries will follow the pattern established by colleges of medicine maintaining hospitals for instruction and research purposes. While some colleges will budget annually more than a million dollars for hospital service, income from patients will reduce this amount to one or two hundred thousand dollars, to be charged against training and research.

There are several hundred institutions preparing teachers for the elementary and secondary grades. The writer predicts that by the close of the first post-war decade approximately five hundred public and private universities and colleges will have film libraries. These institutions will operate film lending libraries on a service charge basis for schools in the immediate geographic areas. Teaching aids services which operate on a budget of $30,000 to $50,000 should have an income from service charges of $25,000 to $35,000, leaving a balance of $5,000 to $15,000, to be charged by the institution to training and research.

In order to serve cities and villages with a population of less than 25,000, which comprise approximately sixty percent of the total population, the five hundred institutional film libraries serving these schools will need to buy an average of three to five prints of more outstanding classroom films to provide a ratio of one print to each 25 classes covering the concept which the film treats.

The five hundred film libraries will also serve organized adult groups. The writer further predicts that an increasing number of state and public libraries will extend the scope of their free service to include films and radio transcriptions. The state library will be a source of films for smaller public libraries that cannot afford to purchase films. A number of libraries will organize a film information service for organized adult groups. Requests for aids not owned by the public or state libraries will be referred to an institutional or commercial film lending library.

Departments or Bureaus of Teaching Aids. The scope of the services of a film library must be extended beyond the physical distribution of films to include guidance and instruction in selection, utilization, and production of all types of aids. The director of the department of audio-visual aids, either on the college or school level, must expect to devote a portion of his time to working with teachers in selecting audio-visual aids on a basis of potential usefulness in par-

[8]Rosenlof, George Walter. *Library Facilities of Teacher-Training Institutions*, Bureau of Publications, Teachers College, Columbia University, New York City, 1929. p. 119-123.

(*Concluded on page 205*)

Maps and the War

A discussion of the significant role played by maps in the present war which will enlarge the average reader's conception of what maps can accomplish.

WILLIAM M. GREGORY
Western Reserve University
Cleveland, Ohio

THE map is a visual tool to present geographical facts graphically. From the earliest date maps have shown earth facts of place, size, distribution and ownership. Land survey maps were our greatest interest during our land hunger when we were exploring, expanding and exploiting our resources. During our expansion, other nations were exploiting and mapping the world. The superior world maps were made in Germany, just as the best sailing charts were English and the finest astronomical charts were French.

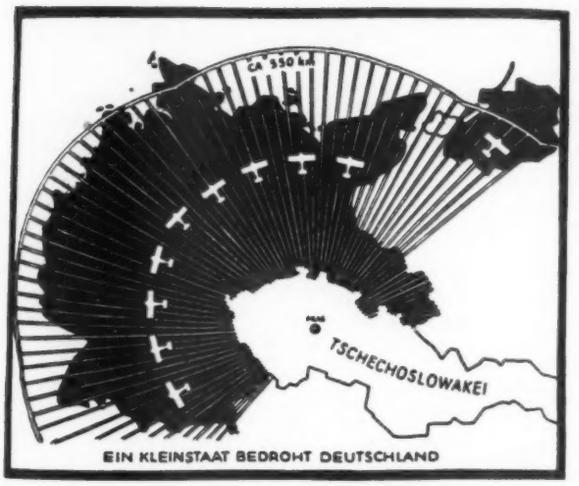
The Germans were late colonizers and they started World War I to obtain more land. They lost what they had and Haushofer ascribed their defeat to a lack of "global" understanding.

The plan for World War II was laid by Professor General Haushofer as he developed along with the maps a pseudo-science, "Geopolitics," which is a loose combination of geography, economics and world politics. Geopolitics consists of half facts and aspirations that are organized to inspire and justify German conquest by might, terror and deceit. Haushofer and his school have used many slogans to inspire and arouse his people. These have been applied to maps in a most effective manner. Such as "Blut und Boden" (race and soil), "Macht und Raum" (power and area), and the more familiar, "Lebensraum" (living space for Germans.) In connection with the latter, it should be noted that little Belgium has twice the density of population of Germany.

Maps have been given great importance by Haushofer who considers every political map a propaganda weapon and he outlines the following rules for producing the most effective propaganda maps:

1. Each map must have a single theme and point to a single conclusion.
2. The intended effect should be visually obvious without study by the user.
3. Aspirations as well as facts are suitable for maps!
4. Dynamic maps should be distinguished from the static maps.
5. Color is used for emphasis and always red for Germany to give the impression of its strength!
6. The best geopolitical maps are those without labels.
7. The map may be made to show the third dimension so as to lift the political above the physical features. (This is applying the block diagram to political geography.)

The above specifications as suggested by Haushofer are useful to those who use propaganda maps as was done by the German Library of Information of New York. Likewise these specifications should be in the mind of those who use maps for instruction as an aid in detecting the errors of the geopolitical maps. Such over-simplified maps leave out much of the truth regarding the conditions of many geographical problems. The less of the real geography that a propaganda map shows the more likely will its false ideas be conveyed to the user.



(1) Small State Threatens Germany, from *Survey Graphic*, Oct. 1941—a Typical Haushofer Suggestive Map.

The dynamic or "suggestive" map is designed to inspire action by the user. These suggestive maps are regarded by Haushofer as the most effective method of getting the mass of people to accept ideas. The German dynamic maps are made to inspire and encourage many kinds of aggression, expansion, encirclement, penetration, infiltration, missioning, absorption, etc. Reproduction of such maps in the news and in school books has given wide publicity to many half truths, among the youth and the adults of Germany.

To make the dynamic map effective a few simple symbols are used to indicate action. Of these the arrow is a good example with its heavy barb, double barb, double, curved and broken shank. All these forms, and many others, have been given definite visual meaning on skillfully drawn maps. The simple basic symbols are often united into forms with clear geometric patterns which sharpen and make more clear the intent behind the map.

Besides the many small symbols to suggest ideas, the Germans use large mass signs. (1) In the Czechoslovakia map, Germany is covered with the Czech war planes which threaten destruction of Germany! This map was designed to hide the danger to the Czechs of the vast hordes of German planes.

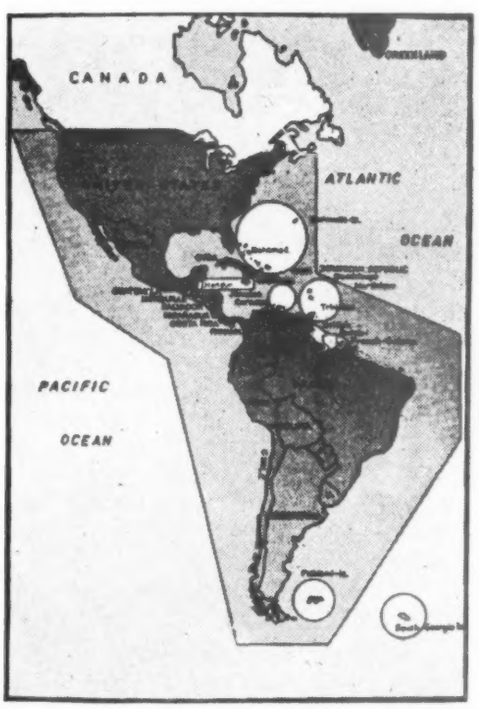
In addition to the simple symbols the Germans have employed pictographs on their maps. This pictorial method of presenting statistics was "borrowed" from Otto Neurath of Vienna and has been used among the German elementary schools and the masses. Another clever visual tool is the political manometer which shows the geopolitical condition by combining

geographical weights and economic pressures at critical and focal points.

It is only possible in these brief statements to give enough of the above methods to indicate that they are used with political, not scientific motives. They are employed expressly to drive home the point of view of the German propagandist, not to teach geographic truth.

Divide and rule is the hidden objective of the atlas, "The War in Maps" prepared by Haushofer and others at the Geopolitical Institute at Munich and distributed in this country by the German Library of Information of New York. It contains "suggestive" maps to influence this country against Britain. It has maps showing how the British threaten the Monroe Doctrine in the Western Hemisphere. (2) More than ten of the maps imply that the British are aggressors in the present war and some six of the maps show the righteousness of the German cause.

We have been slow to answer these efforts and it is obvious that only excellent factual maps can be used

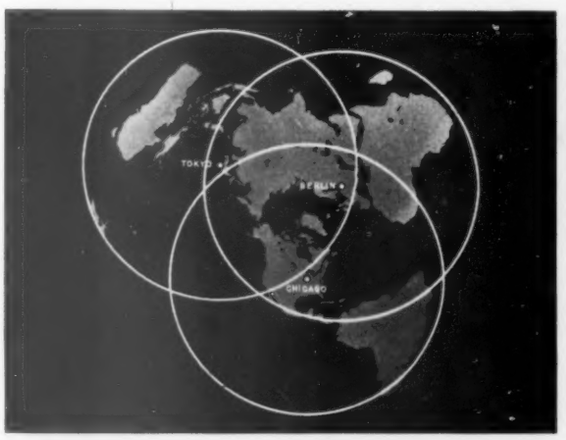


(2) England a threat to Monroe Doctrine from *The War in Maps*, p. 33—a deliberate use of design to exaggerate British areas.

to combat these skillful propaganda maps for words do not have the convincing power that comes from cleverly made maps. Exposure of the falseness in maps after the damage is done is a poor remedy. It is better to have a wider use of the simple factual maps in our schools and in the public print. Of course, under the present war stress the newspapers, thru the Associated Press, The United Press and other agencies, print many maps of the war campaigns but those do not remedy our past neglect of map use for geographical understanding. The New York Times, Fortune, Life, Time and others have done very notable maps for adults but, to be effective, larger groups must be reached. For the schools and youth it is necessary that there be a much greater distribution of simple factual maps that are adapted from Bowman's "New World," Horrabin's "Outlines of Political Geography," The War Department's "The War Up To Now," "The War in Maps" (New York Times), "Global War" by Mowrer and Rajchman, and the excellent map diagrams in the British "Battle of Supplies." Some of these are war publications but their style and clear presentation should be followed in publications that are designed for instruction in the fields that our schools have neglected.

The motion picture can be most effective in interpreting the simple map facts that our educators have obviously missed. Moving map diagrams could present certain phases of a region visually and when this is combined with a clear commentary, the impression would be convinciing and lasting. Walt Disney's *Saludos Amigos* illustrates the excellent use of color on the maps of Latin America. The *Expansion of Germany* has been done in 16mm black and white and gives a vivid impression of the German aggression. This would be an excellent topic for class discussion in the secondary school. The *New Geopolitics or Hitler's Plan* is a recent 16 mm Canadian release that visualizes the falseness of the plan. *Planned Destruction* is a commercial 35 mm issued by MGM that shows Haushofer and his school at the production of propaganda maps. A new Erpi film shows how *The Airplane Changes Our World Map.* (3) Its maps and commentary form a good basis for classes or adult discussion groups. It presents in simple and truthful manner how the different types of maps were useful and shows the "Heartland" in its relation to the present air routes.

The above suggestions are made to those who realize that we must improve our presentation of geography by the more skillful use of the old and new visual tools. If the old Mercators were burned and a few trained and well informed geography teachers installed who would use skillfully the modern tools, we would soon recover from what Commissioner John W. Studebaker calls us, "the most illiterate geographically of any civilized country." It is hoped that by more map instruction our youth will obtain global ideas that are not too little nor too late.



(3) Polar centered map shows world centers to be within twenty-four hours air travel time—from the Erpi film "The Airplane Changes Our World Map."

Pre-Induction Training with Audio-Visual Aids

Emphasizing the helpful role visual aids are playing in the revised high school curriculum, necessitated by the wartime need for specially trained youth.

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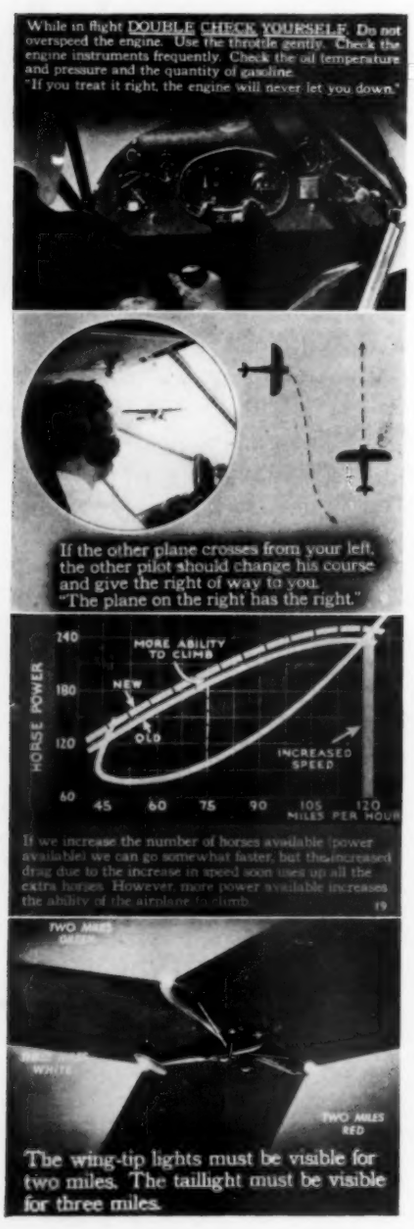
PRE-INDUCTION training is sweeping through the schools of the nation like a tidal wave. Driven by the hurricane force of military demand for youth, and better trained youth, it engulfs many of the traditional courses familiar but a year ago, and leaves in its wake numerous specialized courses in many fields. Some of these courses are merely subdivisions of regular high school subjects tempered and disguised with special practical applications, but others are almost entirely new. Mechanics offered for pre-flight students is a subdivision of Physics, while Aeronautics contains much which has never before been offered to teenage students.


While in flight DOUBLE CHECK YOURSELF. Do not overspeed the engine. Use the throttle gently. Check the engine instruments frequently. Check the oil temperature and pressure and the quantity of gasoline.
"If you treat it right, the engine will never let you down."
If the other plane crosses from your left, the other pilot should change his course and give the right of way to you.
"The plane on the right has the right."
HORSE POWER
240
180
120
60
MORE ABILITY TO CLIMB
NEW
OLD
INCREASED SPEED
45 60 75 90 105 120
MILES PER HOUR
If we increase the number of horses available (power available) we can go somewhat faster, but the increased drag due to the increase in speed soon uses up all the extra horses. However, more power available increases the ability of the airplane to climb.
19
TWO MILES WHITE
TWO MILES RED
The wing-tip lights must be visible for two miles. The taillight must be visible for three miles.

Frames from the Jam Handy series of film slides on pilot training.

Caught in the whirling current, many superintendents were swept from their feet, and proceeded dizzily to fit into their respective curriculums these new courses with little forethought relative to purpose and content of the courses, or to the preparation and ability of their teachers to make them practical and worthwhile. Others, however, waited, and watched developments before making decisions; and still others, thanks to their conservative balance, wisely supplemented the regular courses with additions and modifications which would satisfy the new demands imposed upon their schools.

Pre-induction training is vital, and should be given wherever it fits smoothly in the curriculum, but if it falls upon the shoulders of the classroom teacher, as a more or less foreign assignment, it may catapult him into a state of befuddled uncertainty. This uncertainty is bound to arise if the teacher does not know anything about the subject matter he is supposed to teach, or granting a knowledge of it, if he has never trained to teach it. In either case it is a task, this teaching of pre-induction courses, which the teacher may not accomplish unless he seeks innumerable teaching aids to lessen his work and make his presentation clearer and more interesting.

To this end he will find many types of teaching aids, or devices, which can be used satisfactorily. Each has its own merit; each must be used differently; but all serve as a means of communication. Printed material

Courtesy of Keystone View Co.

Teaching aircraft identification with slides

of all kinds, radio, phonograph records, demonstrations, displays, working models, slides, film strips, and motion pictures, silent or sound, black and white or in color, are examples.

For teaching Morse Code, no device can serve better its purpose as a teaching aid than the phonograph record. There is on the market a splendid set of twenty records which is used in several schools at present. The method of use is simple. A record is played, then played again, and again, until the student has learned his lesson. He hears, at first, an attempt to vocalize the signal, da—, da, da (followed by the signal dash, dot, dot) and he is told that it is the signal for the letter D. Subsequent lessons increase in difficulty and soon code dictation is given which the students take down, and which can later be corrected from a key accompanying the teacher's manual.

Records are useful, also, for ear-training in the languages not only of the allied nations, but also of the enemy nations. As they are played, the student listens to an explanation, a pronunciation, and then, in unison with the voice on the record, he attempts to pronounce himself, the letter or syllable spoken. The process is repeated until success is attained.

Especially for those who hope to become pilots or navigators and therefore will cover vast areas of the earth's surface, global geography is valuable, and can be made easier if a globe of the world is available. By carefully studying a sixteen inch physical and political globe, the student learns with a piece of string, using an easy scale (one inch equals about five hundred miles) that the shortest route by air from Chicago to Moscow is by way of the north polar regions, and also why ships from New York to Liverpool go by way of Newfoundland. On that same globe, he finds highlands and lowlands, prevailing wind directions and ocean currents; gradually he forms a vivid mental map of island distribution and location.

For the astronomer and celestial navigator the astronomical globe makes it possible for him to understand more clearly declination and right ascension. From it he learns the constellations and their locations, and soon finds the sixty stars which he will be required to know, name, and locate in post-induction application.

In a course in Aeronautics given in one Connecticut school, sections of Pratt and Whitney motors are demonstrated. Such parts as valves, push rods, cam, carburetor, connecting rods, master rod and crank shaft are seen and handled by the class members who usually have a good supply of questions to ask. The demonstration certainly makes the lesson clear. It is in this same class that after actually pulling the cord on a real parachute the students see the cover snap open and the small pilot chute unfold. In a few moments they learn what a parachute looks like and feels like, but their most interesting experience is trying to get the cover closed again. Much energy is expended in the effort, but with little success. The lesson taught here is that a man must be experienced in order to be a parachute packer, and that proper folding and packing is essential for safety.

Practice in constructing vector polygons necessary in the solution of navigation problems is given in a class in Plane Geometry using for the teaching aids only maps, protractors, compasses, and measuring scales.

Demonstrating the effect of a swift current of air on top curved surface of plane's wing, in the Bray motion picture "Youth Takes to Wings."

The diagrams constructed include wind drift, radius of action, interception, and wind correction, and involve drawing to scale, scale selection, laying-out angles with the protractor, and measuring direction between points on a map. This kind of work creates much interest among the students, and the results are surprisingly good, considering the crudeness and inaccurateness of the tools used. It is pre-induction training at its best.

No attempt can be made to estimate the number of instructors who are using film strips in their courses in Aviation, Theory of Flight, Electricity, Magnetism, Map Reading, Machine Shop, and Mechanics. These strips, or slides on film, are very compact, require little storage space and may be shown by anyone without previous instruction with a small easy-to-handle projector. They are very plentiful. One company alone advertises seventeen thousand slides designed especially to meet current demand for accurate teaching aids for use in the pre-induction courses. These, however, are for sale and not for rent, although a few kits may be rented from private owners and some state defense councils.

In using film strips, instructors find it an advantage to be able to project a frame on a screen, and to allow it to remain there as long as it is necessary, while specific details of the material illustrated are explained. And, too, after a frame has been removed, it can always be returned to the screen if needed again, and only desired frames can be selected.

The motion picture film forms a very large source of teaching aids from which the pre-induction training teacher can select. More than one hundred and eighty titles are included in a list published by the Office of War Information. These titles cover many fields and are distributed through approximately a dozen government agencies, free of charge or for a small service fee. Likewise, a rather extensive list is published by the Connecticut State Defense Council. No rental fee is charged by the Council for use of a film but there is a service fee of fifty cents and transportation. All states have depositories, usually located at the state univer-

(Concluded on page 217)

The Diorama Comes to the Classroom

What the diorama is, how it functions in the learning process, and why it belongs in the classroom—by a teacher that uses it.

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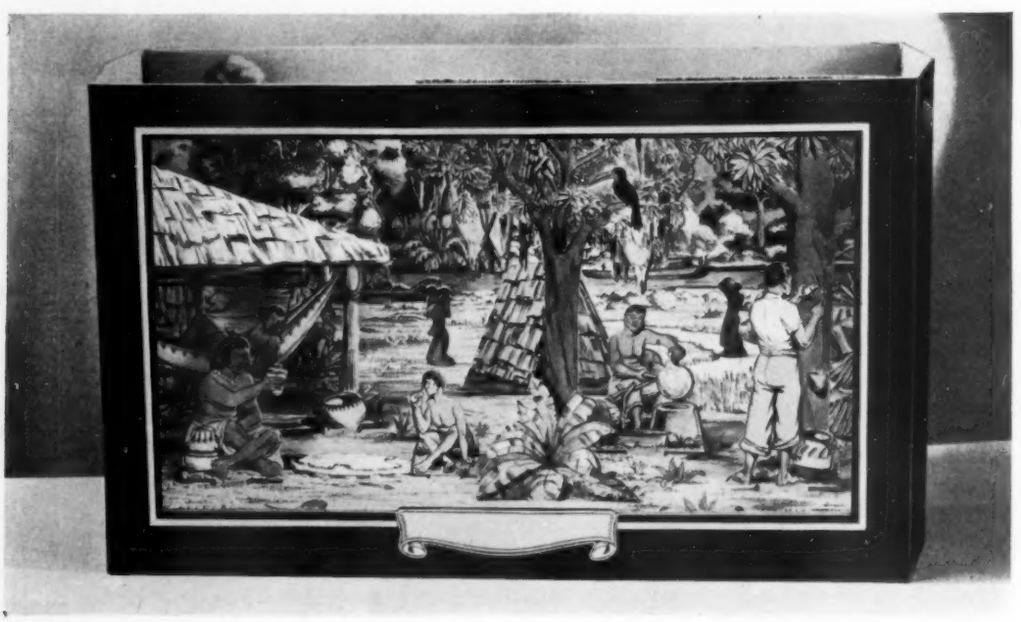
THE writer recently had occasion to use the diorama as a teaching aid in her social studies work. This comparatively new medium is still unknown to a great number of school people. But her students were so interested in it that the writer was prompted to delve further into the history, values, and applications of the diorama for classroom purposes. The results of this preliminary investigation are presented below.

The diorama may also be called the miniature habitat group. It may be defined as a graphic reconstruction of a scene, in three dimensions. That is, it has depth, as well as width and height. In its most highly developed form, it is a sort of stage enclosed in a box. The word "Diorama" is derived from the Greek—"dia" meaning "through" and "horan" meaning "to see," and means literally "to see through."

Originally used as an exhibit in museums, it was evolved partly from the universal method of installing information, on shelves, or in cases, all subjects relating to the same thing. Subjects pertaining to science, history and ethnology were commonly presented in this way. The great cost and difficulty of constructing large groups of scenes and the desire to show whole villages, ceremonies and events containing a great number of figures led to the development of miniature scenes. The further method of placing these scenes against background logically led to the use of the curved background.



A diorama presenting a scene in the Amazon Region.

Dioramas vary greatly in size and construction. Some are very small, perhaps with an 8x10 inch front and a depth of 4 inches, in which cardboard cut-outs are placed to depict a scene. On the other hand, the diorama called "The City of Light," which was shown at the New York World's Fair, was of enormous size, measuring a full city block in length.

In the majority of dioramas, the figures are stationary and fixed. In a few, we find removable figures, i.e., those which can be inserted in their proper place in the scene. These can be easily constructed by students of all ages. They are especially desirable for the lower elementary grades, where students are particularly anxious to partake in or carry on activities. Occasionally we find a diorama with moving parts, such as those exhibited in store windows or other large commercial exhibits.

Perhaps the most important factor of the diorama that conveys the third dimensional aspect is the figures. These may consist of any of the following three forms—the flat cardboard figure, the half-round figure and the three-dimensional figure. In a true diorama, the latter is desired, as it brings home most vividly the third dimension, which is essential for a realistic reconstruction of the scene.

This aid to learning is at present in its infancy, insofar as educators have been ready to accept it in their teaching program. The literature on the subject is extremely meager, with only one research study having been reported to date. This is the study by Dr. Irene F. Cypher.[1] A good deal of work in connection with the construction and school use of this device has been performed by museums and WPA visual aids extension projects. Since the diorama is, in essence, an adaptation

1. Cypher, Irene Fletcher. *The Development of the Diorama in the Museums of the United States.* Ph.D. thesis, New York University, 1942.

and miniature representation of the museum habitat group, museum workers have gone one step further and have brought this type of visual representation into the classroom by designing the diorama as a portable aid. Thus the diorama has been serving the same specific and unique purpose in the classroom that has been achieved by a habitat group in the museum, namely, the reconstruction and representation of a scene in third-dimension.

Two inherent characteristics of the diorama makes it especially valuable in arousing and holding student interest. First, it provides a setting in its natural environment. It has greater interest than a flat picture. Secondly, through faithful reproduction, it presents details of objects, people, and of the environment to such a degree that the spectator is challenged to stop and make careful observations. The diorama has been found to be particularly appropriate for use in the teaching of history, geography and nature study, where the introduction of accurate reconstructions of historical scenes and environmental conditions were instrumental in vitalizing and awakening a new interest in these subjects. However, it should be remembered that the diorama is designed essentially to represent a scene in third-dimension and should be used particularly when that factor is essential to the learning process.

The selection of dioramas as a tool of instruction must receive considerable attention by educators, in order to insure the correct use of an aid which will be of material help in the educative process. Unfortunately, there is a paucity of research data on dioramas. Few criteria for their selection and use have been developed. Specific questions which should receive consideration are:

1. Is the subject or theme of the diorama of sufficient teaching merit to warrant a detailed study of the scene?
2. Is the scene selected one which is particularly adapted to three-dimensional visualization? Would a two-dimensional presentation be equally effective?
3. Is the factual content of the scene accurate and authentic in detail? Have the proper colors been used? Are the objects in the round or in the flat? Has this factor any bearing on the appeal and instructional value of the diorama?
4. Are the scene and its details sufficiently large for students to be able to see them clearly?
5. Is the diorama light enough in weight to be portable?
6. Is the diorama simple in construction, thus encouraging student construction of dioramas of their own?
7. Is the cost of materials low enough to warrant student production?

Trends in Audio-Visual Instruction

(*Concluded from page 199*)

ticular fields and in planning teaching methods which will capitalize on the unique contributions of each type of aid to the learning situation.

The scope of the film library service should be extended to include slide films, sets of miniature slides and flat pictures, phonograph records and radio transcriptions; object specimens, models and exhibits; graphic materials, such as, posters, charts, and graphs; and a classified file of learning situations in the community available for class visitation. The department should carry on an experimental production program of sound motion pictures, radio programs and other types of audio-visual aids. A sound film production unit and a FM broadcasting station can be acquired for less than $15,000 each. According to the inventor of Frequency Modulation it will be possible to allocate to "every community one or more channels on the air so that stations particularly adapted to local needs can be set up and operated without interference."[9]

Workers and students in audio-visual instruction believe that not only will these aids affect educational methods but they may also exert an important influence on selection and organization of content used by schools as a stimulus to learning. If audio-visual aids are to play an important role in the teaching process, then producers and teachers need to know more about the probable effects each type of aid will produce. Departments of teaching aids must undertake studies, "to find out whether and to what extent a given type of aid affects the attitudes of students, their acquisition of information, their sensitivity to social problems, their ways of thinking, their interests or their appreciations."[10]

[9]Armstrong, Edwin H. "Frequency Modulation and Its Future Uses." *The Annals of the American Academy of Political and Social Science*, January, 1941. 213:153-61.

[10]Tyler, Ralph W. "The Classroom of the Future." *Educational Screen*, June, 1939, 18:197-8.

Put Your Projector to Work This Summer!

The Office of War Information is urging schools and other owners of 16mm sound projectors to make these projectors serve in the war program this summer. All available projection apparatus should be used to the fullest in ways which will insure maximum benefit to the war effort for the longest time. Here are five ways schools can put their projectors to work:

1. Take your projector into war plants. Offer its use to plant managers, to labor organizations. Both Industry and Labor know the value of war films in increasing production, in giving workers a greater sense of participation in the war.
2. Work with the civilian defense organization in your community. Offer the use of your projector in warden meetings, in first aid classes. Get in touch with the Victory Speakers' Bureau in your town. Make use of your experience in films by arranging programs for civilian groups.
3. Make your projector available to adult clubs and organizations meeting during the summer. Arrange regular weekly or monthly showings of war films to luncheon clubs in your community, women's clubs, fraternal organizations, church groups.
4. Arrange showings of films at public meetings—band concerts in public parks, war rallies in courthouse squares.
5. Fit pictures into the summer school program.

Special care should be given to projector care and maintenance. Cleanliness cannot be overemphasized, because in addition to the life of the projector, it affects the life of the film and quality of projection.

MOTION PICTURES—NOT FOR THEATRES

Part 48.—No other single attempt to solve at one time all of the crowding, conflicting problems of non-theatricals has had the ingenuity or the force of the memorable and heretofore unsung "Screen Companion"

By ARTHUR EDWIN KROWS

BY the summer of 1923 it was pretty evident that the National Non-Theatrical Pictures Corporation had not solved the problem, either. Yet, in the National Non-Theatrical Pictures Corporation Levey had built up a certain amount of good will, and he controlled a library containing some obviously valuable film. He had done a trail-blazing executive job, and he figured that there should be some salvage of property for him.

In ultimate agreement with this view arose Wellstood White, one of the most conscientious, respected and intelligent workers in non-theatricals. White was president of United Cinema Company, which held exclusive distribution rights to the Graphoscope, a patent screen, and a small, select demonstration library of religious and educational pictures. I had known White moderately well about a year before when he had had office space sublet from Walter Yorke, in the Masonic Temple Building. White's pet idea for exploiting the non-theatrical field on a large scale, was to maintain a brokerage business, to buy in, from his place in New York, likely films for the various non-theatrical libraries over the country, on a straight ten per cent commission for service. That no doubt explained his prompt interest in the affairs of Harry Levey.

So, about the middle of 1924, there was the inevitable reorganization of National Non-Theatrical Pictures, Inc., and a new corporation replaced the old. This was called the General Vision Company. The president was F. C. Pitcher. I believe that Pitcher was a Wall Street broker. He must have believed pretty sincerely in the undertaking because, when the end came, he found it necessary to go through bankruptcy. But the money his company provided bought out the original shareholders, including Levey and Ellis, and financed the expansion generated in 1942. General Vision Company acquired all the revelant interests of national Non-Theatrical Pictures, Inc., and of United Cinema. Don Carlos Ellis, while no longer a stockholder, now became secretary-treasurer and a member of the board, with active charge of production and the acquisition of new materials. Wellstood White was assigned picture distribution and the continued sale of Graphoscope Projectors.

About a year later the end came into view. I have a clear mental picture of Wellstood White, seated alone at the far end of an otherwise empty room in the once imposing suite of offices at 120 West 41st Street, trying to figure out and reconcile the remaining unhappy accounts. He was the last man there, of course. One would have expected him to go down with the ship, for it had been said of Wellstood White that he had "more financial integrity than any other man in the motion picture business." In more recent years he became a star salesman for a large hardware house in Washington, D. C. Later still he entered the real estate business in the same city, glad to forget a depressing chapter in his life. (I apologize for reminding him of it now.)

Don Carlos Ellis, on the other hand, continued. In 1925 he became vice-president and general manager of Bray Screen Products and a little later editor of the "Bray Screen Magazine." During the unsettled days when modern talking pictures were coming in, he headed the educational film service of Consolidated Film Industries. Then a close association with the industrial department of Pathé led to his organization of Films of Commerce, an independent enterprise which still did Pathé custom production. As a non-theatrical pioneer Don Carlos Ellis has had a rich experience.

"The Screen Companion"

THE third far-reaching plan of non-theatrical distribution which I have in mind as belonging to that now distant silent films period, strikes me as being by all odds the most remarkable because of the completeness with which it still might reconcile and serve all difficulties of the field as it stands. It is admirable to work out an ideal system on paper, as George Skinner did, and it is useful in its way, too, to have a flatly commercial schemes such as that which Harry Levey put into practice. But there is place, also—a better place, I believe—for the plan which is both practical and idealistic.

No man could have been better designed by nature to open the way to an undertaking of that sort than Frederick S. Wythe. Gifted beyond most men in the motion picture industry in his quick vision of all-embracing truth (and thus commanding in his strategy), he has proved again and again, as these pages must bear witness, that he is also resourceful in his tactics of practical accommodation.

When Wythe brought his civics series from the Pacific Coast to New York, about 1921—he demonstrated it late that year for the New York City Visual Instruction Association of Washington Irving High School—and was referred by the visual instruction department of the city schools to Ilsley Boone as the man who controlled the supply, he was unwittingly moving toward an entirely new and astonishing chapter in his experience. He took office space with Boone, who, at that time, as already related, had some other interesting tenants. Among these was the Rev. John E. Holley, and Holley was immensely attracted to Wythe. It seemed to Holley that of all those with whom he had held converse on the subject of non-theatrical film distribution, in which he was so greatly concerned because of his Holy Land pictures, none had a more comprehensive grasp than Wythe.

In his remarkable first survey, made in the space of only two or three months, Wythe apparently had met everyone of importance in the Eastern field, recognizing their merits—and their limitations. Above all, he realistically appraised the character and magnitude of the problems. But his mind, working as always toward compensations for the defects in the view, showed him ways and means to provide them. With remarkable swiftness, he formulated a single plan which properly put into practice, might have overcome many of the difficulties in American non-theatricals. He did not tell everybody about it at first; but he did confide some of it to Holley. Holley became sufficiently excited over the idea to want to become part of the realization, and, when Albert Krippendorf, his own wealthy sponsor, came to New York from Cincinnati, he introduced Wythe and encouraged him to tell frankly what he saw in this field. Wythe found Krippendorf kindly, intelligent, sympathetic and definitely interested, so he did give his unadorned opinion on the non-theatrical situation as he had studied it. When Wythe came to his scheme for the practicable form of service, Krippendorf, abetted by Holley—although he actually needed little encouragement then, —decided to start the plan in work.

The aim was to build and to maintain a system of non-theatrical distribution ultimately to cover the nation, comprising a number of interlocking, regional circuits. With an entertainment program, changing each month as the units moved in rotation over the circuits, it would provide circulation for advertisers who would, in the main, be expected to support it. When Program A had played its month on Circuit No. 1, it would move on to Circuit No. 2, while Program B supplanted it on No. 1. Thus Circuit No. 2 would not come into existence until Circuit 1 had proved itself. So the programs and circuits would multiply naturally and easily as the plan justified further investment.

Shows would be put on by competent projectionists with proper equipment. Their pay would come from the modest price paid by the customer for whom the show would be given, plus income from the other sources because the machinery of exhibition, thus sustained,

would be available for use between times in schools. Even producers were provided for, because, when advertisers would contract for sufficient circulation, their pictures would be made for them without additional charge. And, when the number of shows reached a given number, it would pay to produce entertainment subjects as well as commercials. Specifically, all this meant that a six-reel, 35mm motion picture program, with projectors screen and operator, would be supplied, during an appointed evening, to any church, school, club or other non-theatrical gathering of not less than two hundred persons, for only ten dollars. The name of the program, identical with the name of the enterprise, was "The Screen Companion."

An ample suite of offices was taken in the Masonic Temple Building, and a staff of workers was quickly assembled. Wythe, of course, was the executive head. Holley was present, naturally, but he was still well occupied with the final editing of this Holy Land series and could not give full time to the project. In charge of distribution was Major Ward M. Wooldridge, a splendid, sincere young man with a proud war record and a Y.M.C.A. background. He was a Pittsburgher. Part of his value to the Companion was a close friendship with Col. Jason M. Joy, non-theatrical supervisor for the Will Hays Committee, under whom he had served in France. Presiding in the advertising department was Eustace L. Adams. He was an even younger man. He had advertising agency experience and was influential in his contacts as a nephew jointly of Temple Bailey, the novelist, and of Gertrude Lane, editor of the *Woman's Home Companion*. I, myself, was placed in charge of production, having lately come from the Chronicles of America. Under Adams were Albert St. Peter, the rough-and-ready quondam salesman for Frank Tichenor, who, in a sort of lifelong embarrassment over his family name, insisted upon being called "Pete;" a quiet but dogged youth named Fisher; and a sharply analytical, direct young man, William Wright Briggs, who had been an assistant account executive at the J. Walter Thompson Advertising Agency.

Wooldridge introduced into this circle Herbert L. Stephen, a buddy who had been with him in the Army and who had served in many capacities in the amusement field. Stephen had been an assistant director with the Thomas H. Ince organization at Santa Monica, a property man for Mary Pickford in Hollywood, a theatre manager and a newspaperman in Los Angeles. Yes, "Steve" had traversed many ups and downs; nevertheless he had kept a youthful enthusiasm, an infectious laugh and a clear, straight eye which won us all instantly and never to our regret. He had come with the Screen Companion ostensibly as a publicity man; but he gravitated quickly to a position as office manager, with rapidly accumulating executive duties in charge of the organization's finances. It was "Steve" who brought in Jack De Marr to solicit bookings. De Marr had once been an actor. I had known him pleasantly in a New York stock company years before. In the interval he had been a salesman, disposing of goods far harder to place than ours would seem to be.

Wooldridge had to mark time at first because, obviously, there could not as yet be any distribution. At the same time he was not by any means idle, being of that nature which is ready and eager to undertake any part of the work which comes to hand. With a view to proper action, however, he had engaged in addition to De Marr, a man who was to be the first projectionist. This was the never-to-be-forgotten Harry Swartz, an

For more than quarter of a century Don Carlos Ellis has used his own training as teacher to shape commercial films to classroom needs.

irrepressible but likeable Jewish youth who could do many useful things and if requested would attempt anything else. For the present Harry was a chauffeur, driving Krippendorf's fine car which had been left in New York for our convenience. He had once driven an ambulance in Boston; and I never have ridden with a steersman who could weave so speedily through heavy traffic and between Elevated Railway pillars without losing the confidence of his passengers. As a projectionist he had been employed by Frank Tichenor in the old Simplex rooms.

In my own department, there was no regular production as yet. Nevertheless, there was plenty to be done in an editorial way because it was necessary to have tangible programs as quickly as possible. My chief assistant, *pro tem*, was Larry Fowler, who had been Holley's cameraman in the Lincoln tests. Larry was willing and able enough, but from dawn to dusk he was vastly amused by what struck him as being a fantastic adventure; and now that I look back upon the experience, there is something to be said for his chuckling point of view. For the present, between sessions with Holley and the film laboratory on the Holy Land material, Larry rounded up quantities of old theatrical motion pictures which might be acquired cheaply for the assembly of our first programs. As I recall, it was he who arranged our access to the output of the then recently defunct Thanhauser Company of New Rochelle, where he had once been employed and where he had learned his trade.

Wythe had decided at first upon a limit of seven reels as proper for a single program, although it eventually became six. It was composed generally about like this: The start would be a one-reel novelty such as "Tony Sarg's Almanac," with Major Dawley's silhouette animation. Came next a slapstick farce in which cavorted, perhaps, some of the now-forgotten Thanhauser comics. Then came a department called "Your Home and Mine," consisting of a reel divided into three sections, a trio of short advertising subjects dealing with such matters as the use of copper and brass roofing and plumbing fixtures; the importance of fire insurance; and possibly, instruction by a firm of silversmiths on setting the table for a formal luncheon. After that appeared a pleasant travelogue, also in one reel—let us call it one of the Chester subjects entitled "The Hill Towns of Italy." Succeeding that, in turn, came another tripartite reel generally called "Your Health and Mine," demonstrating, say, the microscopic action of Ivory Soap, how Hills Brothers bring dates from "the Garden of Eden," in the valley of the Tigris and Euphrates, and the peculiar virtues of Esmond Blankets. Last of all came a two-reel "feature," a wholesome "family picture," which might be one of the *Woman's Home Companion* series, carefully reëdited to serve these later needs.

When sheer accident eventually obliged the Screen Companion to fold its tent and steal away into the night, I used to think of its principle as sort of trade secret which should be hidden jealously thenceforth until it might appear again with Wythe as the engineer. Its plan was well known, of course, during its first life. Wythe made a point then of explaining its action to schoolmen, clergymen, advertising men, industrialists, theatrical exchange men and all others who might advance it by their enthusiastic understanding. And yet, when it missed fire, nobody seemed to take it up. It appeared that those who might have done so must have been distracted from the idea by something more pressing, and it seemed that heaven must have been especially smiling to have distracted them all simultaneously.

But by degrees I discovered the truth. Many unscrupulous persons did try to take the idea. The announced but unrealized plan of the National Association of Manufacturers in June, 1923, was surprisingly like it. But they failed. Their trouble was that they lacked Wythe's vision with which to see the entire project in one view. They saw only the immediate profits in single phases, and this myopia, of course, was what hid the interdependence of other phases. In Wythe's plan there was something for every honest worker in the non-theatrical field, and to deprive any one of his just portion was to upset the fine balance of all the rest. The church, the school, the

club, the producer, the distributor, the projectionist could have their respective shares of value. When I realized the shortsightedness of those who would not take the trouble to see, I hesitated no longer to speak freely of the Screen Companion. Those whose outlook on life is selfish *cannot* steal it, and those who want it for human service cannot take it without benefiting all, including the man who originated it.

The advertisers who were approached with the Companion idea were soon interested in this possible, measurable motion picture circulation which did not risk the displeasure of the paying patrons in a regular theatre. By the plan they were given advance notice of each show, and, after each show, full reports on attendance and reception. Programs reached middle class family groups of known respectability and substantial purchasing power, and reached them over and over again, month after month. But the prospective advertisers could not at once understand why each of the six ads in a single program was restricted to only a third of a reel. If the show was booked, why not take advantage of the situation to give the audience a real advertising drive? But no, approximately three hundred feet of 35mm was the limit at one time for one advertiser. The audience must be considered too. The charge to the individual advertiser for that representation was about $3.75 per show, which could be reduced easily to terms handsomely comparable with circulation figures presented by the national magazines.

Of course, Wythe knew as well as anyone else that to found a national non-theatrical distribution overnight would require millions in capital. He therefore dismissed that thought of financing as impractical. He worked, instead, to start modestly in a single area, using current materials and existing establishments as logical economies, to their advantage and to his, forging the links of his chain outward from the first one like the growth of a strand of algae in a pond. The first place chosen was naturally the convenient one—the New York metropolitan area. Within that radius there was little difficulty in booking shows. A minister, wavering between puttting on a "lemonade supper" or a full, wholesome motion picture show, so nominally priced that a hundred ten-cent admissions would pay for everything, did not hesitate to choose the show; and he was usually eager to receive the program for next month on the same terms.

The projectionist was satisfied to take for his services the money paid, cash in hand, at the close of the exhibition. Yet that was not his only income. In the morning he probably had a screening of educational films in the school, or a noon hour program for the Chamber of Commerce. Even his future was well planned, for Wythe had worked out an arrangement whereby he would eventually own not only a pair of De Vry Projectors for duplex equipment, (it was all 35mm film then) but also a Ford car for carrying them around to distant customers. In other words, the Screen Companion would ultimately set the projectionist up in business.

Herbert L. Stephen's knockabout experience in all phases of motion picture production and distribution made him an ideal business manager of the amazing "Screen Companion."

As to pictures, we were literally deluged with ready-made subjects from many quarters, the rights purchasable for a song which Wythe was an adept at singing. In looking them over I think that we must have screened everything of importance which had reached the non-theatrical market to that time. Wythe and I worked night and day assembling programs out of the mass, editing and retitling to meet our needs. This, of course, was to provide the "sustaining" entertainment material. But the ready-made advertising films were plentiful, too, industrial companies commonly having in hand elaborate productions which had lain idle because there was no proper distribution to carry them beyond the reaches of the "free" libraries. At the same time it was no small trick to cut an eight thousand- or nine thousand-foot picture effectively to the required third of a reel. How we did it, and how we won the approval of the advertiser who owned the subject, makes an interesting story; but telling it would be too much of a digression here.

Adventures in Advertising

However, I should not let pass, without comment, my own casual use of a loose expression, current in the industry today, referring to the entertainmentment part of an advertising program as "sustaining." That is too much like the practice of sugar-coating the pill. Wythe always held that advertising content should sustain itself, or we didn't want it. We accordingly insisted that the advertising message should be arresting and informative or diverting for its own sake, and thereby we made certain that our audiences also would give it their willing attention. We never camouflaged an ad.

Each advertising subject we ran was introduced with a title stating that the material concerned had been produced "in coöperation with" such-and-such a company (naming the advertiser frankly), implying that, to obtain authoritative information which we had found interesting enough to talk about, we had gone to someone in the business who really knew the facts—namely, the advertiser. At the end of the program we also had a title stating that, if anyone present wished to learn more about the products which had been advertised on the screen, the projectionist would gladly supply printed literature. A surprising number then did apply, and took occasion to wonder, at the same time, why theatres did not show programs as entertaining as these.

The general idea of making advertisers pay for the show was, of course, not new. Many others had proposed it and tried it. Years previous Léon Gaumont had told of one of his dreams of the future of the motion picture industry, involving a lot of theatres where the spectator would pay a penny to enter and advertisers would pay the rest—the way one enjoys popular magazines.

It quickly became apparent that our particular big problem was with the advertisers. When we talked of wanting advertising appropriations comparable with those devoted annually to magazines, it became a matter beyond the small amount squeezed by a company publicity department for making one commercial film. Advertising agencies, finding that their clients were considering such expenditures, became interested. Of course, we wanted just that, for we were certain that we could convince agencies as well as their clients of the worth of our plan. Representatives of the agencies accordingly visited us, studied our figures and viewed our specimen programs. With almost one voice they voiced their approval. The big fellows, however, were not satisfied with a picture proposition which would reach only New York's metropolitan area. Show us your circuits in operation over the other major marketing areas of the United States as well, they said in effect, and we will join gladly. Of course, like the large foundations which William Harmon used to mention, they were quite right in refusing to experiment—and then, too, even for the New York circuit we had as yet no provable results in quantity.

Nevertheless, there were some fair-sized enterprises definitely interested in this local market and, like Harmon's small foundations, they could afford to take chances. The market was not precisely negligible. It covered, I believe, a population of approximately ten million persons. One of these pioneer patrons of ours, especially deserving of honorable mention, was Mueller's Food Products, Inc. Mr.

(*Continued on page 219*)

The Film and International Understanding

Edited by DR. JOHN E. DUGAN
Haddon Heights, New Jersey, Schools

JUST six months ago, in December, 1942, this department was launched. It was an experiment in which Mr. Greene had confidence. In the relatively few months which have intervened it has assumed a position of leadership and has served as a focal point for evolving ideas and practices in this most rapidly developing field of visual education.

In this month of June, as we close one academic year and look forward to another, some review of the department during these months may be profitable and give us more indication of the breadth and rapidity of development in this field, as well as an idea of its present status.

The potentialities of the film in the field of international understanding, which can be a problem of war as well as of peace, were discussed in the opening issue. Mention was made of ways in which the Axis had used the film as a weapon of war, as well as ways in which we might meet this challenge and use the film for our own purposes of war and peace.

This discussion was continued the following month, with more attention paid to specific methods and types of pictures which might be used; and Dr. Paul Monroe contributed a brief article on the power of the cinema in world education.

But could we get from these theories to actual practice? In the next issue the relationships between theory and practice were discussed, and attention was called to films which now actually were carrying out some of the theories propounded. Walt Disney's *Saludos Amigos* was discussed at length and consideration given to the possibilities of the animated cartoon in the realm of international understanding.

Representing the public schools, Frank M. Rice of Omaha contributed an article on a project in this field which he had carried out at Omaha Central High School. This issue also carried a report of RKO's *This Is America* series, which was made to boost morale at home and better understanding of America abroad.

A scene from Disney's "Saludos Amigos"

The field was broadening, and practice was crystallizing theory.

In April Prof. C. L. V. Meeks of Yale contributed his fine article on Yale's pioneer work in visual education in its graduate program of Foreign Area Studies. The intense practicality of this work is indicated by the following quotation from his article: "Visual education was especially important to this program. These students had to have an understanding of the area they were studying as a whole; furthermore, they were not preparing to write a thesis in a library, they were going out to the area in question in a few months. The men should know what they were going to find; they should be made as familiar as possible in advance with what they would see as soon as they walked off the plane."

In May Dr. Herbert S. Houston presented his "Educational Film Plan for the United Nations," the most comprehensive plan yet proposed for the use of the educational motion picture as a world-wide instrument of international understanding. Said Dr. Houston: "It is clearly manifest that the very moment has come to develop a broad educational motion picture plan for mass education throughout the United Nations."

Surely we have come a long way within a relatively short time. Mr. Greene's confidence was justified!

Turning from the educational to the theatrical film, Mr. Will H. Hays, President of the Motion Picture Producers and Distributors of America, Inc., entitled his recently issued twenty-first annual report "The Motion Picture and a World-Wide Audience." Almost two pages in it are devoted to consideration of "The Outlook for Education" and "Future of the Screen in World-Wide Understanding." Some pertinent passages from this report are quoted below:

"It is in our lifetime that men have first discussed peace in world terms. It is also in our lifetime that an art has achieved world dimensions as a medium of expression and as a source of entertainment to all men everywhere.

"These two facts are not unconnected. An international community in the art of motion pictures already exists. In it men of every race, creed, and nationality have found a common denominator."

"Over barriers of suspicion, unawareness and tradition, the motion picture offers the language of pictures which is the common language of mankind."

"Through promoting mutual understanding and

(*Concluded on page 217*)

SCHOOL MADE MOTION PICTURES

Students Make Biology Film

By HARDY R. FINCH
Head of the English Department
Greenwich High School, Greenwich, Conn.

The making of a school motion picture is an educational venture. *Evander's Chicks*, produced by the Motion Picture Club of Evander Childs High School, New York, was very successful educationally, according to a report by the film's director, David Schneider. Below are interesting excerpts from Mr. Schneider's film-making report.

THE filming of *Evander's Chicks* followed a most unorthodox approach. The Biology Research Club, under direction of Miss Lucy Orenstein, was engaged in incubating chick eggs as a term project. The Motion Picture Club was invited to stand by for an occasional shot or two whenever chick embryos were being unshelled. Presently our interest, which at first was focused on the appearance of the embryos themselves, turned to the more elaborate techniques involved in the entire project. Thus it developed into a "give and take." Members of the Motion Picture Club learned about embryology, while the Research Club devotees learned that there are two ways of manipulating materials, one for themselves, and one for the camera.

We shot the first hundred feet in black and white.

A film in production at Evander High

None of us had ever used Kodachrome before. Noticing the success with our first reel and remembering the vivid colors of the various stages of embryonic growth which meet the naked eye we were sorry, indeed, that we had missed so many colorful opportunities. Armed with four or five rolls of Kodachrome and a renewed enthusiasm for our project we began.

Again and again the faculty adviser and such members of the Motion Picture Club as were free during certain periods of the day (not excluding occasional time before and after classes) were summoned by the embryologists to be ready for important developments. In this manner were we able to complete the shots portraying the various stages of chick development from twenty-four hours till twenty-one days after incubation.

Now that we had some interesting pictures, it was left to the faculty adviser of the Motion Picture Club to clothe these shots with some kind of continuity to make the story palatable for the other students of biology. Following is a brief outline of the subtitles and pictures that make up the three hundred feet of film.

Title	Pictures
1. Setting up the incubator.	Girl opens door of incubator, places dish of water inside, adjusts and records temperature.
2. Fertilized and unfertilized eggs placed in incubator same day.	Students date and mark eggs fertilized and unfertilized, place them in incubator.
3. An embryological scout does a good turn every day.	Student opens incubator and rotates several eggs one half turn.
4. After 24 hours can you tell the difference between the fertilized and unfertilized eggs?	Students remove eggs from incubator, open both kinds, and point to areas showing differences between them.
5. Three days old.	Egg opened after third day of incubation.
6. Six days old.	Egg opened after sixth day of incubation.
7. Embryologists at Evander become crack experts.	Several students open eggs. Other students watch process.
8. Making a window to observe developing embryos.	Students remove part of shell, and in its place insert cover glass and seal it.
9. Life in an egg shell.	Egg opened after eight days of incubation, showing contraction of heart and blood vessels.
10. Nine days old.	Corresponding stage of development and activity in embryo.
11. Fifteen days old.	Similar method as above.
12. Embryos perserved and mounted.	Embryo of about seventeen days placed in Kleinert's solution and mounted in bottle.
13. Nineteen days old.	Chick embryo removed from shell, placed in dish, yolk pushed aside. Embryo shows motion of legs, wings and beak.

(Concluded on page 212)

Every Continent Knows
VICTOR
Motion Picture Equipment
Victor Cameras and Projectors are favorites the world over, because only the finest picture and sound quality can be tolerated in today's vital teaching, combat training and entertainment programs. Their professionally perfect performance makes them the faithful servant to millions in War or Peace.
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Distributors Throughout the World

(*Concluded from page 210*)

14. The twenty-first day.	Chick's beak piercing through egg shell, the rest of shell carefully removed. Door of incubator opened. Another newly hatched chick found sitting next to broken shell in corner.
15. Unshelled, facing a brave new world.	Young chicks feeding and drinking.
16. Instructing embryo scientists.	Faculty adviser of Research Club reviews some technique with president of club, and introduces president to prospective members. Club president demonstrates techniques of incubation, and passes around several bottles containing preserved embryos. Students observe contents of bottles. Close-ups of egg, bottles containing preserved specimens from third to twenty-first day. Final close-up shows live chick.

This film, far from being the perfect study of chick embryology has received enthusiastic response among teachers as well as students.

Fifth Midwestern Forum On Visual Teaching Aids

In Co-operation with Zones III and IV, Department of Visual Instruction, NEA

July 23-24, 1943

Room 159, Belfield Hall
The University of Chicago

Meeting in Conjunction with
TWELFTH ANNUAL CONFERENCE FOR ADMINISTRATIVE OFFICERS FOR PUBLIC AND PRIVATE SCHOOLS
July 19 to July 23, Inclusive

PROGRAM

Friday, July 23

Visitation of Exhibits—Old Gymnasium
Belfield Hall (2:30 P. M.—7:30 P. M.)

EVENING SESSION (7:30)

General Theme: "The Use of Motion Pictures in Developing an Understanding of the War"

L. C. LARSON, Indiana University, Bloomington, Indiana, *presiding*

Showing of recent motion-picture releases related to the general theme

Discussion by: THOMAS HODGE, Film Officer, British Information Services; WESLEY GREENE, Director of Distribution, National Film Board of Canada; JOSEPH H. SPEAR, Executive Director, Pan American Council, Chicago, Illinois; EDGAR DALE, Educational Consultant, Bureau of Motion Pictures, Office of War Information.

General Discussion

Saturday, July 24

MORNING SESSION (9:00)

Theme: "The Contribution of Visual Aids to the War"

HARRY E. ERICKSON, Ampro Corporation, Chicago, Illinois, *presiding*

Showing of films and discussion of the use of motion-picture films in training our armed forces for combat —MAJOR FRANKLIN ADREON, JR., United States Marine Corps, Officer in Charge, Marine Corps Photographic Schools, Quantico, Virginia

Demonstration and discussion of newer contributions of sound motion pictures, slide films, and miniature slides to education and industry, by representatives of Erpi Classroom Films, the United States Office of Education, Society for Visual Education, and Jam Handy.

Visitation of Exhibits

(12:00 M.—1:30 P.M.)

Exhibitors: Erpi Classroom Films, Inc., Society for Visual Education, Bell and Howell Company, Castle Films, Radiant Manufacturing Company, Da-Lite Screen Company, Y.M.C.A. Motion Picture Bureau, Keystone View Company, Ideal Pictures Corporation, Father Hubbard Educational Films, Films Incorporated, Victor Animatograph Corporation, Ampro Corporation, Vocational Guidance Films, DeVry Corporation, Walter O. Gutlohn, Inc., Brandon Films, Inc.

AFTERNOON SESSION (1:30)

General Theme: "Contribution of Visual Aids to Industry and Education"

ALVIN B. ROBERTS, Principal, Haw Creek Township High School, Gilson, Illinois, *presiding*

"Specialized Applications of Visual Aids in Industry" —WILLIAM F. KRUSE, Manager, Films Division, Bell and Howell Company, Chicago

"Economy of Time and Materials Through the Use of Sound Films in Training for War Production," demonstration and discussion— ABRAM VANDERMEER, Research Assistant, Laboratory Schools, University of Chicago

"Responsibilities of Executives and Administrators for the Wider Use of Audio-Visual Materials"—FLOYDE E. BROOKER, Director, Visual Aids for War Training, Federal Security Agency, United States Office of Education

Summary statement—WILLIAM C. REAVIS, Professor of Education, University of Chicago

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The Literature in Visual Instruction

A Monthly Digest

Conducted by ETTA SCHNEIDER

TRENDS

New Techniques in Mass Education — Orson Welles — *Adult Education Journal*, 2:93 April, 1943

A radio address, delivered at the American Association for Adult Education regional conference, March 6, 1943. Here are some sentences from the address:

"Nowadays education itself is better educated . . . The radio is realizing its potency as a teacher—and the movies are so good nothing can stop them, not even the movie-makers, who have certainly tried . . . I offer you a sober, terrifying thought—all educators, whether they like it or not are in the amusement business, and all movie-makers and radio broadcasters . . . are educators."

PHONOGRAPH RECORDS

A Comparison of Phonographic Recordings with Printed Material in Terms of Knowledge Gained Through Their Use in a Teaching Unit—Phillip J. Rulon, et al—*Harvard Educational Review*, 13:63-76; 163-175, January and March, 1943

These two articles describe in detail two of four investigations on the effectiveness of phonograph records in education.

Phonograph Records as an Aid to Learning in Rural Elementary Schools: A Handbook for Teachers and Supervisors—Effie G. Bathurst—State Department of Education, Albany, N. Y. 1943. 171p.

The study described in this bulletin was made possible under a grant from the Committee on Scientific Aids to Learning. Here, briefly, are the stages of the experiment that are described in an interesting fashion in the report:

First, the medium of the phonograph record was studied with a view to using it for enriching the curriculum of rural schools in New York State. Such questions as the following were studied and answered: what subjects should be treated? what content should be included? how could the material be presented most effectively, through dramatization, lecture, dialog or round table discussion?

After having arrived at certain decisions, Dr. Bathurst sought the assistance of outstanding persons to help in the actual production: radio script writers, authors of children's books, teachers, librarians and others. Great care was taken to maintain a high production quality throughout, in the choice of mechanical recording equipment, performers and the like.

The result of this phase of the experiment was 38 records, built around three areas: the environment, English and regional studies. The 10 records for studying a nature trail were a dramatization of the experiences of one class of rural students and their teacher in building and caring for a woods adjoining the school; then there are six records to illustrating ways of making better use of nature; and finally 2 records on "Do You Know Birds?"

For the series on "Stories and Poems We Like," authors of children's stories were interviewed, or good story-tellers were called upon and for two records, a class of fifth grade pupils of Horace Mann School was used to illustrate choral speaking.

The dramatizations in the series, "How Country Children Live" attempted to convey geographical and scientific understandings to show why children living in the various regions of the United States enjoyed different experiences.

The second large phase of the experiment involved an evaluation of these 38 records with the children for whom they had been made, namely, the rural elementary students of New York State. The volume describes in much detail some of the ways in which children and teachers used the records. There are verbatim reports of lessons; answers to specific questions by teachers, and descriptions of units in which the records were used.

This study provides a new, vitalized approach to the phonograph record which has as an advantage over radio programs the fact that it can be used over and over again, and the added advantage in the general availability of phonograph equipment in schools.

We should greatly benefit if we had similar studies for other media of instruction. It will be recalled that Dr. Bathurst made a worthwhile contribution to the field of motion picture evaluation in a bulletin for the U. S. Office of Education on "Conservation Films for Elementary Schools"—Bulletin 1941, No. 4.

RELIGIOUS EDUCATION

Let Us Mix Palestine and Hollywood—Mary C. White, Upper Montclair, N. J.—*Int'l Journal of Religious Education*, March, 1943. p. 10

It is suggested that religious educators go to the movies more often to see what is being shown and to know what young people are seeing; that they make a study by questionnaire of the kinds of films the boys and girls like best, when they go, with whom, and so on; plan to improve the taste for movies by knowing what good films are coming, and then make this information available to the teachers.

One teacher was discussing with an eighth grade class what the Old Testament offers life today. 'Who saw Dumbo yesterday?' she asked. This brought enthusiastic replies from the group. The teacher pointed out how Dumbo had made the best of his long ears, much as Moses did of his speech defect. She then referred them to passages in the Old Testament that described the situation.

Among the films that would lend themselves to discussion among religious classes are, "Here Comes Mr. Jordan," "Citizen Kane," "All That Money Could Buy" and so on.

FILM SHOWINGS

The Cracked Voice of Propaganda—*Documentary News Letter*, March, 1943. Published by the Film Centre Ltd., 34 Soho Square, London W1.

During the last two years the British Ministry of Information has built up what is perhaps the largest and best organized non-theatrical distribution scheme in the world. During 1942 the films reached an audience of 12 million, and in 1943 an estimated 18 million will see them. Over half of the audience in 1942 went to shows given by mobile projection units: 137 units give 1,300 shows a week.

The article makes a plea for better showmanship in presenting these important war films, especially with respect to the acoustics of the meeting hall. A survey by sound engineers is strongly recommended to set standards for sound recording and projection.

FLAT PICTURES

The Picture Collection—revised 5th edition The H. W. Wilson Company. 950 University Ave., New York. 1943. $1.25.

This is the first edition to be issued since 1930. During that time many changes have taken place in the administration and scope of the Newark, N. J. Public Library's Picture Collection of which this is a description, and these changes are mirrored in this new edition.

Materials and equipment, sources for pictures, methods of processing and storage, classifying and charging are all described in turn. There is a valuable Directory of Publishers

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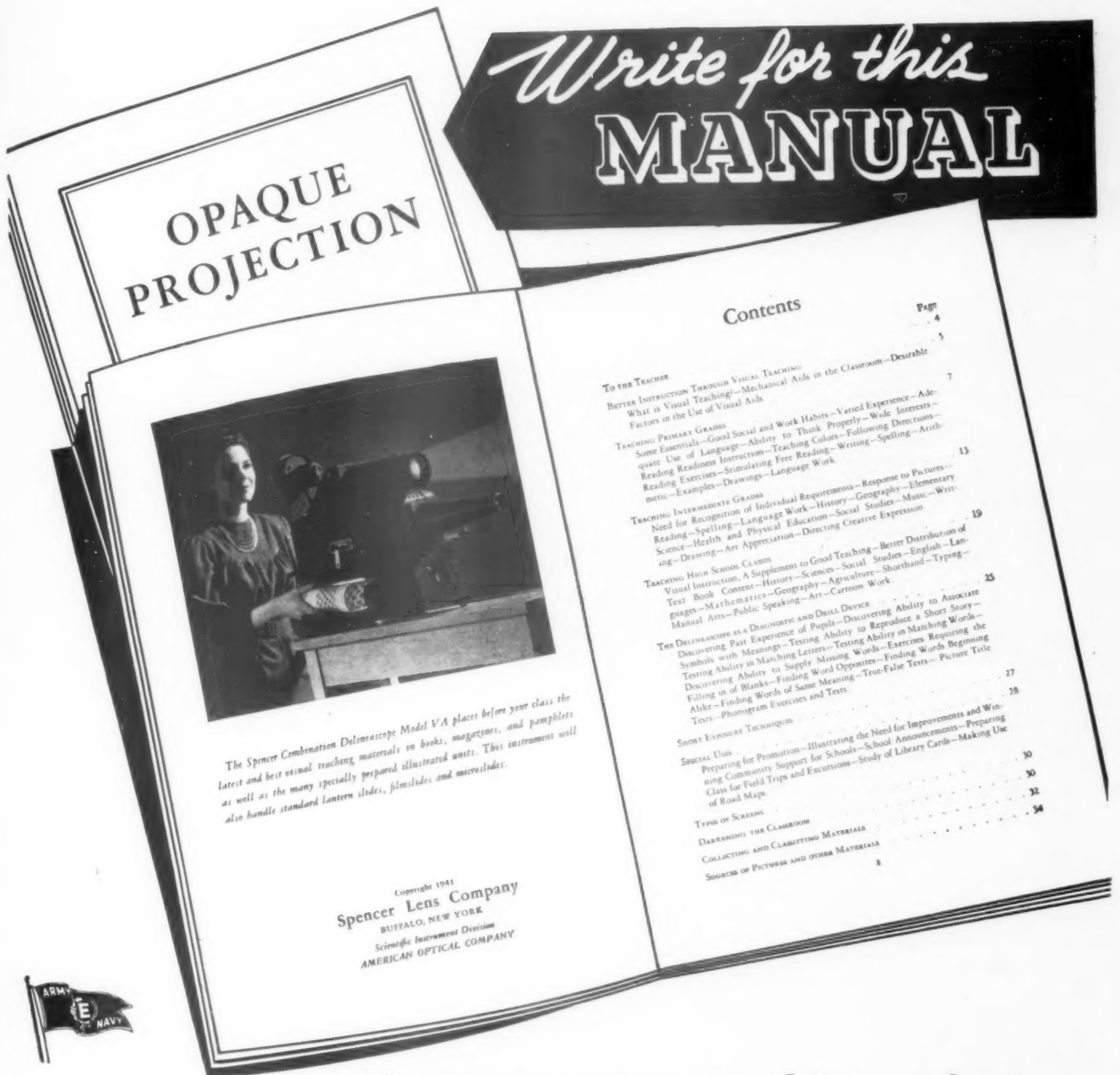
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It presents new teaching techniques

This illustrated 36-page manual was published by Spencer in the interests of better instruction through visual teaching. It contains a wealth of specific suggestions for the use of the opaque projector and includes some teaching techniques printed here for the first time.

The majority of summer schools conducting courses in visual education utilize this booklet as a text.

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of pictures, to which there is a subject index at the end of the book. Various auxiliary collections are described in detail, such as picture sets, post cards, lantern slides, prints, oversize and framed pictures, and posters. The service the Collection renders to schools and other groups in the community, typical requests and how they are met, are other features that teachers and librarians will find helpful in the solution of their own problems.

The second half of the book contains a list of the subject headings used by the Newark Library in classifying their picture collection. These are printed on the left-hand side of the page, leaving the right-hand column free for the user's own changes and additions.

RADIO

Radio Appreciation in Secondary Schools—C. I. Glicksberg, Southside High School, Newark, N. J.—*Curriculum Journal* 14:73-6. February, 1943.

This article gives reasons why a course in radio appreciation should be given in high school. Teachers of such a course are advised as follows:

1. Do not impose standards. They must be learned from experience.
2. Let the students decide good and bad.
3. Develop a tolerant, hospitable attitude permitting the inclusion of divergent tastes and interests.
4. Instill a feeling of confidence, no snobbish appeal.
5. Conversion will be the result of a long process of growth in sensitiveness and insight.
6. The object is to develop understanding of what one likes, self-understanding, to build up self-evolved and self-imposed critical standards.

PERIODICALS

Sight and Sound, Spring, 1943—The British Film Institute, 4 Great Russell St., London WC1.

In "Beyond the Box Office" there is a report of the non-theatrical film activities of the Ministry of Information between Sept. 1941 and Aug. 1942. There was a weekly audience of 350,000 and an annual audience of 12 million.

There are three media for showing films: the mobile film units, of which there are now 130. These give 1200 film shows a week. Six of them are 35mm. units, and some of them have gasoline generators to help provide electricity where there is none. Then there are film showings in theaters, out of theater hours, fifty a week having been given last year. These include training films for the Civil Defense and National Fire Service personnel. And finally, there are the films circulated through the Central Film Library with its sub-libraries in Scotland and elsewhere. There were 48,000 bookings to 3,500 separate organizations with their own projectors. These reached an audience of 4½ millions. The Library is now booking 1,500 Ministry of Information films a week.

A staff of workers in the Ministry of Information's regional offices directs the traveling shows and the out-of-hour theatrical shows. About once a month there are factory showings; then village groups are given showings about every two months. Training films for civilians are not shown regularly, but when needed.

Special audiences have special films, produced for them by agencies of the government. There are special films for farmers; for housewives; for health workers; for civil defense leaders and workers. Since September, 1940, the Ministry has produced 332 films.

Radio-Electronics in Education—Department of Information, Radio Corporation of America, 30 Rockefeller Plaza, New York. 48p.

Articles in this magazine describe the influence of radio as a science and as a system of communication, with special reference to its educational uses. "Radio-Electronics" is the term used, because new developments in radio and electronics, including television and the electron microscope, were included.

Dr. James Rowland Angell first sums up the educational programs of the National Broadcasting System. Paul Thornton in his article, "Recordings Find Wide Use in Teaching Field" describes the music appreciation records, literature records as "Abe Lincoln in Illinois," Shakespearean readings, poetry readings by Cornelia Otis Skinner, and so on. There is an article on the use of motion pictures, in group instruction, written by Ellsworth C. Dent; and Sterling Fisher's description of the Inter-American University of the Air.

Perhaps the two articles of most outstanding interest are those by Noran E. Kersta and M. C. Banca. The first makes clear not only the fundamentals of television but its possibilities in educational procedure as the broadcasting range is increased. The second article serves to clarify the working principles and growing scope of the new and too little understood invention, the electron microscope.

SOURCES OF INFORMATION

Free and Inexpensive Learning Materials: 1942 Supplement—Lucille Denham—Curriculum Laboratory, George Peabody College for Teachers, Nashville, Tenn. Bulletin No. 84. November, 1942. 25c.

The material in this bulletin has been organized around topics, alphabetically arranged. Pamphlets, posters and similar teaching aids were carefully examined by at least three persons and compiled with the aid of fifty librarians from the Library School. Criteria for selection are given in the Foreword. The bulletin should be of great value to teachers.

Illustrative Materials for Conservation Education—W. H. Hartley, State Teachers College, Towson, Maryland—*Journal of Geography*, 42:153-7 April, 1943

An up-to-date evaluated listing of films is preceded by teaching suggestions based on practical classroom experience.

Teaching Materials for Industrial Education—Chris H. Groneman, Texas A. & M. College—*Industrial Arts and Vocational Education*, 32: 15-18; 55-7; 58A-66A; 201-2; 244-7, January-June, 1943

This excellent source of information, published serially, includes materials for the teaching of the following areas: auto mechanics, crafts, drawing, electrical trades, industrial trades, metalwork, woodworking. In the January, February and March listings, pamphlets and exhibits are given; in the May and June issues, films are enumerated.

Pre-Induction Training with Audio-Visual Aids

(Concluded from page 203)

sities, from which a limited number of these films can be obtained if desired.

The motion picture is used extensively in pre-induction training, and rightly so. A pre-flight student may get something of the feel of an airplane ride by simply taking a motion picture airplane trip. A future marine may learn from a travelogue the exact nature of the terrain he will perhaps later invade. The liaison officer-to-be finds a wealth of information relative to the manners and customs of peoples he will contact from such documentary films as North Sea, a story of the lives of Scottish fishermen, Five Faces, introducing the five races of Malaya, and Man of Aran, showing the difficult existence of the folk of Aranmore.

For the more technical courses, films are obtainable for explaining the uses and applications of precision measuring instruments, the engine lathe, the milling machines, shapers and drills. Forty-eight titles under these headings were developed by the Office of Education of the Federal Security Agency. The Army Air Force and Navy Department offer thirty-eight titles under Engines and Structures, Weather and Navigation, Radio, and Aerodynamics. Many subjects are also available from commercial film libraries throughout the country. Many of these are widely used in several schools, as definite lessons in the training courses. In some instances they are the only lesson given on the subject but they apparently prove effective.

At present, pre-induction training has not reached the peak of its importance. Just so long as the enemy shows a breath of life, just so long as the military forces of the nation must expand in order to become strong enough to snuff out that breath of life, pre-induction training must go on growing in scope with time. Military demand for trained youth will still exist, new theories of wartime may develop, and new up-to-date teaching aids will be made to answer the needs of the instructors.

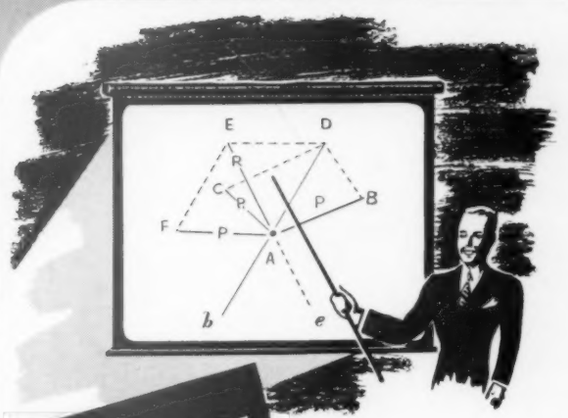
The Film and International Understanding

(Concluded from page 209)

sympathy, will the motion picture contribute to the peace that lies ahead."

"At the end of the war the armed forces will return to the educational institutions a large number of teachers who will have become accustomed to teaching with films. . . . . We are prepared to cooperate with the nation's educators in the making and realization of plans, looking toward a future in which the facilities of the industry will be more fully used."

Surely the field of the film in international understanding is broad, and the time is ripe. Seed has been planted and is being planted, and it is taking root and growing rapidly. The harvest will be not only for visual education, but to an even greater extent for the peace and security of the world and its citizens for generations to come.



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Department of Visual Instruction Notes

New Zone Officers

Some of the D.V.I. zones have held elections recently, which resulted in a few newcomers to office.

Zone I continues with Mr. Wheeler as President, but Miss Dorothy A. Allard of the Reading, Massachusetts, Public Schools is the new Secretary-Treasurer.

New Officers of Zone III are: President—Mr. H. B. Allen, West Virginia University, Morgantown; Secretary-Treasurer—Mr. L. M. Lash, Henry Ford School, Dearborn, Michigan.

Donald W. McCavick, University of Texas, Austin, is the new Secretary-Treasurer for Zone IX.

D.V.I. Members Serving the Government

Lt. L. W. Cochran, formerly president of Zone IV, writes that he is now attached to the Thirteenth Naval District, Seattle, Washington, as Audio-Visual Training Officer for the forces afloat.

Lt. Donald K. Lewis, who had to resign as Secretary-Treasurer of Zone V when called to service in the U. S. Naval Reserve last December, is supervising the use of audio-visual aids in the naval training schools of Minnesota, North Dakota, Iowa, and Wisconsin.

That trio who last reported from the AAF School of Applied Tactics, Orlando, Florida—namely, Lt. Godfrey M. Elliott, Lt. Don White, and Captain H. A. Gray—have been transferred to the Training Aids Division, AAF, 1 Park Avenue, New York City.

Mr. C. R. Reagan, who has been serving as Senior Educational Film Adviser for the Bureau of Motion Pictures, Office of War Information, is carrying on the work of stimulating maximum effective use of war films throughout the Southeast, Southwest and Pacific Coast. His headquarters are located at 1003 Mercantile Bank Bldg., Dallas, Texas.

Summer Courses in Visual Instruction

(*Supplementing April and May lists*)

California

University of Southern Calif., Los Angeles — June 28-July 30
Introduction to Audio-Visual Education; Educational Use and Appreciation of Films (2 each) — Clara Fike

Georgia

Georgia State Woman's College, Valdosta — June 7-July 15
Visual Aids in Education (5 qr.) — E. W. Phelan

Indiana

Ball State Teachers College, Munice — June 8-July 9; July 9-Aug. 13
Laboratory Course in Audio-Visual Education — Evelyn Hoke

Oklahoma

The University of Oklahoma, Norman — May 31-July 27
Visual Aids in Education (2) — Thurman White

Pennsylvania

Thiel College, Greenville — June 7-July 23
Visual Education (2) — N. G. Gebert

South Carolina

University of South Carolina, Columbia — June 8-25
Audio-Visual Education Workshop (3) — W. H. Ward

Texas

Texas College of Arts and Industries, Kingsville — July 12-Aug. 21
Visual and Auditory Aids in Education (3) — H. W. Andersen

Wisconsin

Marquette University, Milwaukee — June 17-July 30
Problems in Visual Education (2) — G. E. Vander Beke

FILM REVIEWS

"Use and Care of the Filmo Sound Projector"

Here is a very new picture. The first finished print happened to be ready the day before our June issue deadline. We chanced to be at the Bell and Howell Laboratories that day and chanced upon the first showing. This review is at least timely.

This is a true example of the single-purpose film. It aims at one objective, to show and tell how to use and care for one particular projector. It does not sprawl its appeal, seeks no "general interest," attempts no "story" punch, and excludes all distractions, both visual and aural. The "sound" matches the picture accurately, appropriately, valuably, with vocal explanations synchronized exactly with what the eye is seeing. It is an instructional film built expressly to teach one skill to the ones who need it, and it succeeds splendidly.

The first part of the film demonstrates every detail of preparation for projection, from removal of film from can through cable connections to light source, threading, focussing, checking, to final switch—on of light, motor and sound, plus final rewind procedure. The second part—perhaps even more important for amateur projectionists—is devoted to "trouble," its prevention as well as cure. All elements in proper care of mechanism are clearly shown, cleaning, necessary take-down, care of lenses, location and handling of all parts, etc. And finally "trouble-shooting," perhaps the high spot in learning interest. Replacement and adjustment of light bulbs is simple, but the hunt for "sound" trouble is almost exciting. The various potential causes are checked, one by one, and finally the methodical testing of the exciter lamp and amplifying tubes reveals the culprit. If the would-be projectionist cannot learn his fundamentals from one or more careful viewings of this film his ambition might better be directed into other channels.

The film was made primarily for training new projectionists in Army and Navy centers where Bell and Howell Projectors are widely used. It is also hoped to make the film available for Summer Courses in Visual Instruction at educational centers this summer. (2 reels, 16mm. sound). For full information address Bell and Howell, 1801 Larchmount Ave., Chicago. N.L.G.

Matt Mann and His Swimming Techniques

(*Reviewed by Indiana Teachers Committee*)

(Coronet Productions, Glenview, Illinois) 17 minutes, 16mm. sound. Sale price black and white $67.50 net, kodachrome $110.00 net. Apply to producer for rental sources.

With groups of boys varying from six to ten in number, Matt Mann explains and demonstrates in this film the techniques and devices which he uses to teach boys the crawl stroke, the back crawl stroke, the breast stroke, and the flying fish breast stroke. He and his assistant first hold the boys in the water and allow them to practice swimming. The boys stand up and use their arms to practice timing and breathing. Then without tubes the boys practice swimming. Next shown is the primary diving drill in which the boys bend down on their knees on the edge of the pool and the coach lets them go and the assistant picks them up. The boys next stand, bend, and dive alone.

Having explained that it is desirable to give land drills in class instruction in swimming, the coach exercises the class in various drills which give the student coordination in breathing and use of arms and legs. The leg kick is first practiced in a land drill and then in the water as the boys hold on to a light board. To demonstrate good arm action a swimmer follows a rope tightly stretched across the pool and with every stroke his hands meet along the line of the rope. Turning, which plays an important part in racing, is explained and demonstrated. Each of the various strokes is practiced on land and then in the water. Slow-motion photography is used to clarify the procedures and techniques peculiar to each stroke.

COMMITTEE APPRAISAL: The first section of the film should be of interest to both teachers and students as it presents devices that will help the student gain confidence in the water and master the basic techniques of swimming. Later sequences in the film show form in swimming and turning for advanced competitive racing. The usefulness of the film could have been greatly enhanced had it been designed for either the advanced or beginning student and had it been addressed to either instructor or student. L.C.L.

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HOLLAND and the WEST INDIES

Kit No. V-085, complete, consists of:

(a) 3 Full-color charts, two on Holland, one on Netherlands West Indies.
(b) 3 film Strips, two on Holland and one on the West Indies.
(c) Set of 24 Photographs, 18 on Holland and 6 on West Indies.
(d) Teacher's Guides on both areas.

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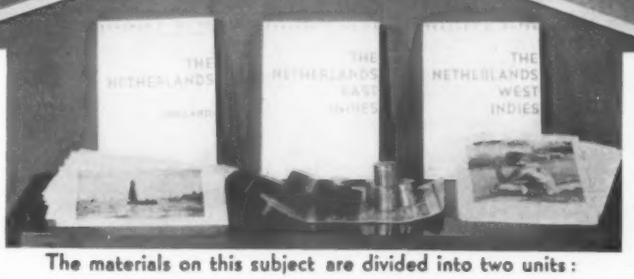

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(a) 3 Full-color Charts
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(c) Set of 24 Photographs
(d) Adhesive Symbols Set
(e) Base Map
(f) Teacher's Guide

Price of Kit No. V-075, Complete $9

A COMPREHENSIVE UNIT

Motion Pictures— Not for Theatres

(Continued from page 208)

Matson, the advertising manager of the concern at that time, authorized the editing of their largest existing picture to a length suitable for our purposes, and it was presented by us under the title, "How They Put the Hole in Macaroni." He stood by us, a loyal, enthusiastic friend, until the very last day, satisfied that he had had a rich return, and begging us not to forget him when we began again.

The publicity man of Oneida Community, Ltd., on the other hand, professed great interest until we had actually produced for him two types of production exploiting "Community Plate." One was in story form, called "A Chest of Silver," and the other, of "special article" order, was named "Setting a Formal Luncheon Table for Six." When misfortune descended upon us, he denied any commitments, but assured us with an odd generosity that he had no objection to our continuing to show "his" films for our demonstration purposes.

After all, he was serving a purpose in teaching us needed lessons. And it really wasn't so tragic, because every time a fish got away, Wythe promptly mended the net and no two ever escaped through the same hole.

Such actual production as we undertook, involving actors and studios, was referred to the dependable attention of Carlyle Ellis. My own attention was needed more just then in assembling programs and organizing a script department. The advertising men, as usual, were insisting upon coöperation in the form of scenarios written especially to fit the needs of prospective accounts. It is difficult, to be sure, to say how far such coöperation ought to go, because the scenario writer's creative imagination and physical strength should not be depleted in mere sales promotion. In my opinion scenarios should not be written without specific order and nominal charges which may subsequently be deducted from the sum named in the production contract. The customer is then a little less offhand in asking for such extraordinary service, and the salesman times himself better in offering it. Also, both acquire a more wholesome respect for what is an important link in the entire production plan.

I think that it must have been St. Peter who made the heaviest drain upon us for scenarios which were never called into production. On one occasion he came in, filled with enthusiasm for the opportunities which he knew positively might be found at a convention of insurance men in Chicago. Wythe decided to pay his fare and expenses there and back to New York, and I was commissioned to prepare for him a series of scenarios presenting the respective merits of about half a dozen forms of life insurance. Duly supplied, thus, with funds and ammunition, St. Peter went to Chicago. Upon his return he brought the usual glowing reports but hopes deferred. Misfortune broke upon us a little later. St. Peter was sorry then, but he had his family to support and could not continue with us on a speculative basis. Without more ado he went away. A few years later I met him at luncheon one day, and, in a spirit of good fellowship, he confided that the trip to Chicago and my series of scenarios had brought him an excellent job with one of the largest life insurance companies in America.

(To be Continued)

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Evidence is presented that our education leaves us without understanding and without emotional control. Without our present systems of education would it be possible to have our present systems of wars?

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"Promises to be your best work," *George Kneller, Yale.*

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News and

Adult Education with Films at Boston University

There are a number of interesting uses made of the films from the library of the Division of Teaching Aids, Boston University, one of the largest educational film libraries in the country. Last year films were distributed to thirty different states and were used by many types of educational institutions and groups, churches, industrial companies, clubs and organizations of all kinds. The Division of Teaching Aids has an advisory service which arranged special educational film programs.

Recognizing the potential possibilities of using the educational film for popular adult education, Boston University established this year "A University of the Screen," a series of weekly film programs. The first course, consisting of six meetings beginning February 3rd, emphasized the use of films related to the War and to Inter-American affairs. These programs provided a previewing opportunity for leaders interested in the use of War Information films before their own organizations. Series Two, extending from March 17th to May 5th, was concerned with general popular adult education and presented films chosen from many subject matter areas.

Individual admission tickets for the series of eight meetings was $2.00 for individual enrollment, or $5.00 for a family enrollment. For information as to similar programs planned for the fall, write to Boston University School of Education, 84 Exeter Street, Boston, Massachusetts.

SMPE Sessions Feature Industry's War Contributions

Descriptions of how the motion picture art and industry are aiding the armed services and the war effort were highlights of the 53rd Semi-Annual Convention of the Society of Motion Picture Engineers held at the Hotel Pennsylvania, New York City, May 4, 5 and 6, in conjunction with the National Board Meeting of the Motion Picture Theatre Owners of America.

Army and Navy representatives set the war stage with the presentation of papers on the industry's role in war training and combat films. A majority of the 30 technical papers scheduled for delivery during the six sessions were devoted to military and naval subjects.

On the opening day Naval officers described the use of motion pictures in the Naval war program, with Lt. William Exton, Jr., of the Navy's Bureau of Navigation, discussing the many "Developments in the Use of Motion Pictures by the Navy," and members of the Navy's Training Section explaining the "Production of Training Films by the U. S. Navy."

The SMPE members convened at the Museum of Modern Art Film Library Tuesday evening for an illustrated discussion on "The Work of the Film Library in War Time" by Curator Iris Barry.

Wednesday's sessions featured varied technical papers, with accent on a new method of preserving valuable and historic films in the Library of Congress.

Notes

Thursday was Army Day, with Army, Air Corps and Signal Corps officers giving thirteen lectures, many illustrated, covering numerous war film activities. The talks described the actual filming and producing of army films and their final use in the training and combat fields.

The convention closed Thursday night with an illustrated lecture on "Visual Processes and Color Photography" by Ralph Evans of the Eastman Kodak Company.

Changes in Detroit Visual Department

Mr. W. W. Whittinghill, who has been supervising the Department of Visual and Radio Education of the Division of Instruction, Detroit Public Schools, for a long period of years, left that department on April 1, 1943 to become a member of the Business Department of the Detroit Board of Education. His new title is Director of Transportation and Warehousing.

The former Department of Visual and Radio Education embraced three units—the Visual Section, Radio Section, and Children's Museum Section. These are now constituted as three departments with the following officers in charge: Visual Department, Mr. Joseph K. Boltz; Radio Department, Mrs. Kathleen Lardie; Children's Museum, Miss Margaret Brayton. All three Departments are under the general supervision of Mr. Manley E. Irwin, Divisional Director of the Division of Instruction.

Uruguayan Educator Visits the United States

José Pedro Puig, Chief of the Cinematographic Section of the National Council on Primary and Normal Education in Uruguay, arrived in Washington April 23, 1943, for a three months' visit at the invitation of the Department of State.

Sr. Puig has produced several 16mm. films on educational topics in his country, and has brought four of these films with him to the United States, dealing with rural schools and the life of country children in Uruguay. It is his intention to show these pictures before teachers in schools and universities, and other groups of persons interested in observing and studying visual education in the other American republics.

Sr. Puig is also a writer of note, on educational subjects, and regularly contributes articles on educational motion pictures and their possibilities to the *Anales de Instrucciòn Primaria*, an official government magazine edited and published in Montevideo.

Greatly interested in the war effort, Sr. Puig plans to visit several defense plants throughout the United States, as well as the studios of such nontheatrical film producers as Erpi and the Museum of Modern Art in New York, and Bell and Howell in Chicago. He is eager to see the production of educational pictures here, and to absorb new methods and ideas.

Sr. Puig is making a study of visual education as carried on in the schools of the United States and is interested also in observing the use of recordings for musical education.

USE OUR PAYMENT PLAN FOR FILM PURCHASES

School Film Libraries and cooperative groups find our budget payment plan a helpful, practical method of securing the 16 mm. sound and silent pictures they desire without taxing their resources.

Under this arrangement, the films are paid for in convenient monthly installments out of income. Pictures may be screened prior to purchase. A minimum purchase of 10 subjects is required.

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IEA Film Goes to South America

The Illinois Education Association film production, "Backing Up the Guns" (reviewed in the October, 1942 issue of EDUCATIONAL SCREEN) will be shown to South American audiences through the office of the Coordinator of Inter-American Affairs. Both Spanish and Portuguese versions will be prepared to demonstrate to our Latin American neighbors the vital role the public schools in the United States are playing in the war program.

Fighting French Distribute Films in U. S.

The Fighting French have opened a film distribution office at 723 Seventh Avenue, York City, and have edited ten short subjects in 16mm and 35mm sound versions from the footage photographed by Fighting French signal corps men in Canada, Africa, England and Madagascar. These films have been shown mostly to noncommercial groups, such as high schools, clubs, academies, Government military offices, and USO canteens. A new series is in preparation, titled "This Is France." It will treat the country as depicted in books and travelogues.

Correction

Mr. I. C. Boerlin, Supervisor of Audio-Visual Aids at the Pennsylvania State College, is Chairman of the recently organized Pennsylvania Civilian Defense Film Committee, and not Mary A. Kunkel, as stated in the April issue of EDUCATIONAL SCREEN (News and Notes department).

Current Film News

■ CASTLE FILMS, INC., 30 Rockefeller Plaza, New York City, announce that the film record of two historically important American actions in the Pacific war can be obtained for school use in 16mm sound and titled versions through their two forthcoming releases:

Yanks Bomb Tokyo—the thrilling revelation of the bomber raid on Japan from the aircraft carrier Hornet. The action starts with the blasting of an unlucky Jap patrol boat from the raging sea. Never-to-be-forgotten are the scenes of the daring take-off as one by one the heavily laden bombers roar off the narrow flight deck of the storm-tossed carrier. Captured Japanese film shows the kind of air-raid precautions that failed when the Yanks swooped over Tokyo at house-top level. The dramatic end of the history-making achievement is seen in China as Madame Chiang Kai-chek decorates General Doolittle and other survivors of the daring raid. All the world now knows what happened to the seven American flyers who crashed in Jap-held China.

Scenes from "Yanks Bomb Tokyo"

Bismarck Sea Victory—the other reel—shows the utter destruction of a Jap fleet of 22 ships by land-based American and Australian bombers. The entire Jap convoy is seen steaming along in orderly array before it scatters in an attempt to avoid MacArthur's wave-skimming attackers, employing the devastating new "skip-bombing" technique. Ship after ship in the Jap flotilla is bombed to destruction. The film shows enemy ships go up in flames, and battered, burning hulks litter the sea. There is an amazing sequence of aerial photography as two defending Zeros, caught in a hail of bullets, explode and disintegrate in mid-air!

■ WALTER O. GUTLOHN, INC., 25 W. 45th St., New York City, announce the release of a very timely 16 mm. silent color film entitled:

Uncle Sam's Siberians—3-reel documentary picture presenting vivid and interesting scenes of the strategic Aleutian Islands and the Bering Sea region. The film shows in detail much of a vital area so little known to us and so important to both the defensive and offensive operations against the Japanese. Available for rental and sale.

■ ERPI CLASSROOM FILMS INC., 1841 Broadway, New York City, have completed production on two 16mm sound reels, entitled:

Discovery and Exploration—describing with animated drawings the North American territory involved during the period 1492 to 1700. Sequences include routes followed by explorers from the old world in seeking new routes to the east; the Spanish conquests of rich kingdoms; and the mid-continent developments in quest of the beaver. The narration gives due significance to the national and personal motives involved.

Sound Recording and Reproduction—which explains the mechanics of sound transformation and transmission from the source to the loudspeaker in the motion picture projector. Concepts presented include the conversion of sound waves to electrical impulses; the conversion of electrical impulses to light changes registered on photographic film; various types of sound track; construction and operation of the light valve; the optical system employed in making the sound track; the motion picture print combining photography of picture and sound; and the reversal of recording processes in reproducing the sound record.

■ BELL & HOWELL CO., 1801 Larchmont Ave., Chicago, list the following new films as late acquisitions by their Film-sound Library:

Paris Calling—12-reel Universal feature starring Randolph Scott and Elizabeth Bergner. It is a thrilling drama of the French "underground" movement for freedom, involving mass flight from the invading Nazis, hairbreadth

A shot from "Paris Calling"

escapes from Gestapo agents, an ingenious secret radio transmitter, and a breath-taking commando raid. This film will be available after July 16 to approved non-theatrical locations.

Menace of the Rising Sun—2-reel Universal special.

Nesting of the Sea Turtle—1-reel silent biology teaching film.

Chaplin Festival—12 re-issued Chaplin comedies, recently sounded, and distributed by RKO. Titles include *The Cure, Easy Street, The Rink, The Floorwalker, The Vagabond, The Pawnshop, The Fireman, The Count, The Immigrant, One A. M., Behind the Screen, The Adventurer.* Available on lease or rental basis.

■ THE PENNSYLVANIA STATE COLLEGE, State College, Pa., reports the latest release from the college motion picture production unit:

Drafting Tips—1037 feet 16mm sound—designed to give instruction in the use and care of drafting equipment, and to emphasize the importance of cleanliness and accuracy in drafting work. It contains instruction on proper sheet layout and the use of an alphabet of lines. The film graphically depicts the best procedure in developing a drawing from beginning to end in the most efficient and accepted manner.

For information or purchase, address Mr. I. C. Boerlin, Supervisor of Audio-Visual Aids, Central Extension Office.

■ COMMONWEALTH PICTURES CORPORATION, 729 Seventh Ave., New York City offers the following two new feature pictures in 16mm sound:

Adventures at the Baskervilles—8 reels—a detective yarn based on a Conan Doyle story "Silver Blaze." Arthur Wontner, who has played Holmes on the stage and screen many times, and Lyn Harding, best known for his representation of the villainous Professor Moriarty, once more pit their wits against each other.

The locale of the new Holmes' story is the same as that of "The Hound of the Baskervilles," but the new adventure takes place 20 years after that episode. This time Holmes' interest is intrigued by the disappearance of a horse. He uncovers one clue after another that leads him to believe that his old enemy, Professor Moriarty, is at the bottom of the crimes, but before he can pin the accusation on him, two other murders occur, and Dr. Watson nearly loses his life.

Code of the Red Man—7 reels—released by Monogram as "King of the Stallions." This film presents a drama of the Wilderness—told against the background of an Indian village on the southwest frontier. Around this has been woven a suspenseful story featuring the magnificent horse, "Thunder." Most of the important roles are enacted by full-blooded Indians, including Chief Thundercloud, Princess Bluebird, and hundreds of redskins from the various tribes of the West. A fight to the death between Thunder, the equine hero of the story, and Paint, a completely wild horse leading his band of stallions down from the mountains, is one of the highlights of the picture.

From "Code of the Red Man"

■ AETNA LIFE INSURANCE COMPANY, Hartford, Conn., has issued a new sound film on:

How to Plan a Victory Vegetable Garden—filmed in cooperation with the National Victory Garden Institute. Designed to assist the nation's spare-time gardeners in getting a maximum return from their gardens, it gives specific suggestions on correct location for a garden, proper size, and the best crops to plant. This film is the first in a series entitled "Pointers for Planters." Other subjects to be covered in the film series include: the proper cultivation and harvesting of the garden; and the storing and preserving of the crop.

■ BRANDON FILMS, INC., 1600 Broadway, New York City, will release several special representative United Nations film programs effective June 14th, 1943, National United Nations Day. These programs of 16mm soundfilms will be available nationwide from regional commercial and educational film libraries on rental in the form of grouped units, each unit containing several films dealing with the people of member nations of the United Nations. The special programs have been selected with a view towards supplying organizations, schools, defense councils, labor and industry with suitable short film programs to be utilized at meetings, seminars, rallies and conferences dealing with the United Nations.

The Dutch, the Polish Underground, the Czechs and the Soviet Union are featured in United Nations Special Program No. 1 which contains the following short films: *The New Earth*, Joris Ivens documentary of Holland; *A Drop of Milk*, a short story film of Polish resistance; *The Czechs March On*, and *Under Siege*, the record of the turning point in the Axis attack on Moscow.

Arrangements have been made so that individual organizations may secure these special programs for one day, and for larger regional organizations to lease copies of the films for longer periods of time.

PROTECT FILMS AGAINST CLIMATE SCRATCHES STAINS FINGERMARKS-THE WAY THE U. S. GOVERNMENT AND THE HOLLYWOOD PRODUCERS DO
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FILM TREATMENT
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130 West 46th St. New York, N. Y. 1801 Larchmont, Chicago 716 N. Labrea, Hollywood

Among the Producers

Visual Aids for Industrial Training

Photo & Sound, Inc., San Francisco motion picture and slidefilm producers, are assisting personnel departments of many industrial concerns in their employe training program by providing suitable visual teaching tools. Now in regular use by the shipbuilding industry is Photo & Sound's series of reading slidefilms covering every phase of shipfitting practice, ranging from demonstrations of simple tools to the more complex procedures of installing pre-fabricated units in the ship's hull. Users of the slidefilms report that they have made it possible to train large numbers of workers more thoroughly and in less time than by any other method of demonstration. Sets of these films, including from 80 to 90 subjects, are in use by more than 100 schools and plants throughout the country, according to the producer.

Blueprint reading is another subject to which slidefilms can contribute. A series on "Training in Blue Print Reading" explains blue print layout, projection, standard lines, standard symbols, sections and detail designations. A working manual supplements this series, providing a completely illustrated reference work on the principal factors involved in Blue Print Reading.

A one-reel 16mm sound motion picture in color on "Short Whip Vertical Welding" has also been issued to aid trainees in learning the fundamentals of vertical arc welding.

Complete facilities for motion picture cartoon animation have just been installed by Photo and Sound consisting of a specially designed camera, illuminated drawing tables and camera stand with built in registering controls, and a special projection unit for plotting animation sequences. Motion picture producers engaged in the production of training films advise that cartoon animation is indispensable for graphic portrayal of certain operating techniques in films for training purposes.

Keystone Slides On Aeronautics

This new series of lantern slides—standard size, 3¼" by 4"—by Alexander Klemin of the Daniel Guggenheim School of Aeronautics, New York City, has been prepared with a view to complete coordination with the high-school pre-flight training courses, such as are now being undertaken in the most advanced and progressive schools of the country. They are divided into the following twelve units, which cover all the topics dealt with in pre-flight training in accordance with the program developed by the Civil Aeronautics Administration and the U. S. Office of Education: Historical Background, Types of Airplanes, Aerodynamics, Aircraft Materials and Their Uses, Aircraft Structure, Structural Detail of the Airplane, Airplane Controls, Airplane Engines, Propellers, Meteorology, Navigation and Radio, Aircraft Instruments and Accessories.

The slides are the work of an aeronautics teacher of long experience and excellent reputation, who has kept carefully in view both the needs of the student, and the teachers' viewpoint. Accompanying the series is a brief manual, coordinating fully with the slides and written in simple, but technically accurate style, which can be used by the teacher with full confidence, and can also be placed, if necessary, in the hands of the students.

HERE THEY ARE

A Trade Directory for the Visual Field

FILMS

Akin and Bagshaw, Inc. (3)
1425 Williams St., Denver, Colo.

Bailey Film Service (3)
1651 Cosmo St., Hollywood, Calif.

Bell & Howell Co. (3)
1815 Larchmont Ave., Chicago
(See advertisement on inside front cover)

Better Films (2)
742A New Lots Ave., Brooklyn, N.Y.
(See advertisement on page 220)

Bray Pictures Corp. (3, 6)
729 Seventh Ave., New York City

Castle Films (2, 5)
R C A Bldg., New York City

College Film Center (3, 5)
84 E. Randolph St., Chicago.

Creative Educational Society (1)
4th Fl., Coughlan Bldg.
Mankato, Minn.

DeVry School Films (3)
1111 Armitage Ave., Chicago
(See advertisement on page 194)

Eastman Kodak Co. (3)
Teaching Films Division
Rochester, N. Y.

Eastman Kodak Stores, Inc. (3)
Eastman Classroom Films
356 Madison Ave., New York City

Father Hubbard Educational Films (2)
188 W. Randolph St., Chicago
Santa Clara, Calif.
(See advertisement on page 220)

Films, Inc. (3)
330 W. 42nd St., New York City
64 E. Lake St., Chicago
314 S. W. Ninth Ave., Portland, Ore.

Frvan Film Service (3)
East 21st and Payne Ave.,
Cleveland, Ohio

General Films, Ltd. (3, 6)
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Walter O. Gutlohn, Inc. (3)
25 W. 45th St., New York City
(See advertisement on page 221)

Hoffberg Productions, Inc. (2,5)
1600 Broadway, New York City

Ideal Pictures Corp. (3, 6)
28 E. Eighth St., Chicago, Ill.
(See advertisement on page 193)

Knowledge Builders Classroom Films
625 Madison Ave.,
New York City (2, 5)

Post Pictures Corp. (3)
723 Seventh Ave., New York City

The Princeton Film Center (2)
106 Stockton St., Princeton, N. J.

Swank's Motion Pictures (3)
620 N. Skinker Blvd., St. Louis, Mo.
(See advertisement on page 216)

Texas Visual Education Co. (3)
305 West 10th St., Austin, Tex.

Universal Pictures Co., Inc. (5)
Rockefeller Center, New York City

Vocational Guidance Films, Inc. (2)
2718 Beaver Ave., Des Moines, Ia.

Williams, Brown and Earle, Inc. (3, 6)
918 Chestnut St., Philadelphia, Pa.

Y.M.C.A. Motion Picture Bureau (3)
347 Madison Ave., New York City
19 S. LaSalle St., Chicago
351 Turk St., San Francisco, Cal.
1700 Patterson Ave., Dallas, Tex.

MOTION PICTURE MACHINES and SUPPLIES

The Ampro Corporation (3)
2839 N. Western Ave., Chicago
(See advertisement on page 196)

Bell & Howell Co. (3)
1815 Larchmont Ave., Chicago
(See advertisement on inside front cover)

DeVry Corporation (3, 6)
1111 Armitage Ave., Chicago
(See advertisement on page 194)

Eastman Kodak Stores, Inc. (3)
Kodascope Libraries
356 Madison Ave., New York City

General Films, Ltd. (3, 6)
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Ideal Pictures Corp. (3, 6)
28 E. Eighth St., Chicago
(See advertisement on page 193)

RCA Manufacturing Co., Inc. (2)
Educational Dept., Camden, N. J.

S. O. S. Cinema Supply Corp. (3, 6)
449 W. 42nd St., New York City

Texas Visual Education Co. (3)
305 West 10th St., Austin, Tex.

Victor Animatograph Corp. (3)
Davenport, Iowa
(See advertisement on page 211)

Williams, Brown and Earle, Inc. (3, 6)
918 Chestnut St., Philadelphia, Pa.

SCREENS

Radiant Mfg. Corp.
1140 W. Superior St., Chicago
(See advertisement on page 217)

Society for Visual Education, Inc.
100 E. Ohio St., Chicago, Ill.
(See advertisement on outside back cover)

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

SLIDEFILMS

Foley & Edmunds, Inc.
480 Lexington Ave., New York City
(See advertisement on page 219)

Society for Visual Education, Inc.
100 E. Ohio St., Chicago, Ill.
(See advertisement on outside back cover)

Visual Sciences
Suffern, New York
(See advertisement on page 220)

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

SLIDES (KODACHROME 2x2)

Klein & Goodman
18 S. 10th St., Philadelphia, Pa.

Society for Visual Education, Inc.
100 E. Ohio St., Chicago, Ill.
(See advertisement on outside back cover)

SLIDES (STANDARD 3¼x4)

Ideal Pictures Corp.
28 E. Eighth St., Chicago, Ill.
(See advertisement on page 193)

Keystone View Co.
Meadville, Pa.
(See advertisement on page 213)

Radio-Mat Slide Co., Inc.
222 Oakridge Blvd.
Daytona Beach, Fla.
(See advertisement on page 220)

STEREOPTICONS and OPAQUE PROJECTORS

Bausch and Lomb Optical Co.
Rochester, N. Y.
(See advertisement on inside back cover)

DeVry Corporation
1111 Armitage Ave., Chicago
(See advertisement on page 194)

General Films Ltd.
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Keystone View Co.
Meadville, Pa.
(See advertisement on page 213)

Society for Visual Education, Inc.
100 E. Ohio St., Chicago, Ill.
(See advertisement on outside back cover)

Spencer Lens Co.
19 Doat St., Buffalo, N. Y.
(See advertisement on page 215)

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

REFERENCE NUMBERS

(1) indicates 16 mm silent.
(2) indicates 16 mm sound.
(3) indicates 16 mm sound and silent.
(4) indicates 35 mm silent.
(5) indicates 35 mm sound.
(6) indicates 35 mm sound and silent.

Continuous insertions under one heading, $2.00 per issue; additional listings under other headings, $1.00 each.